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MODERN TRANSPORT

"THE TIMES" OF THE TRANSPORT WORLD

PROSPECTS IN THE HAULAGE INDUSTRY

See Page 2

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CURRENT TOPICS

Conservatives Consider Transport

TRANSPORT in its various forms figured prominently at this year's Conservative Party conference which, to quote *The Times*, "in contrast to the violence and venom of the proceedings at Scarborough the week before, was as tranquil, as self-congratulatory, and as jolly as a Scouts' jamboree." Not surprisingly, roads came in for considerable discussion, the need being urged for long-term planning and capital investment. The Minister, said one speaker, must demand, and get, a larger share of the national purse; he must fight the case with the Government and secure a greater share of road user taxes. A member of the N.U.R. from Swindon, amidst loud applause, spoke up for the railwaymen and, appealing for more traffic for the railways, emphasised the relative economy of rail and road transport. Replying to the debate Mr. Ernest Marples, Minister of Transport, suggested that before any urban authority planned its ring roads it should determine, on a scientific basis, the origin and destination of the traffic flow. He did not believe in forcing traffic back from road to rail. The mobility of road transport had hurt railways the world over; they certainly had a part to play, but it was wrong to argue that to remove vehicles from the roads would relieve congestion in city streets. Stating that there must be many more one-way streets he said he hoped to introduce a whole series of them in London during the next 18 months; right-hand turns in two-way streets must be abolished. Wastage of road space must be avoided, and he instanced the road from central London to London Airport where he had seen people washing or repairing cars on a plot of land worth £50,000. His powers were limited; outside London road planning schemes must be initiated by the local authorities.

Roads and Street Congestion

THE Minister claimed that off-street parking was now paying for the first time in central London because motorists could no longer leave their cars in the street free of charge, and this would happen all over the country. His emphasis on the fact that it was not his Ministry's job to persecute the motorist was perhaps timely in view of the protests aroused by excess of zeal on the part of the traffic wardens. Their conduct, incidentally, has impelled Mr. Peter Cadbury to resign his membership of the Minister's London Travel Committee because he cannot reconcile his views on means of solving London's traffic problems with the appointment of these officials. "It would appear," he says, "that they have been granted no powers of discrimination or discretion. . . . Their activities must very quickly bring the law into disrepute and antagonise the public." These men are no doubt conscientiously performing their duties but they may possibly need fresh briefing. To return to the Conservative conference: Mr. Marples was confident that by the mid-1960s Britain would have a network of trunk roads and motorways which would enable most journeys between towns to be made conveniently. Road-building schemes had been slow because Parliament deliberately imposed on his Ministry measures designed to safeguard the right of the individual. At the same time he was expected to be quick; one could not have it both ways. In the past local authorities had planned their urban roads on the basis of a one-year sum of money; in future they would be able to base it on a five-year certain programme. In each of these five years they would get twice the sum of money they spent this year, and in four or five years' time they would be spending four times the present amount on urban roads.

Shipping and Shipbuilding

SHIPPING and shipbuilding have been in the news lately. There has been announcement of the Government's somewhat belated decision to assist in the replacement of the *Queen Mary* and an expression of indignation by shipbuilders at *The Times* disclosure of the contents of a report prepared by the Department of Scientific and Industrial Research which has not yet been published. It has been circulating among shipbuilders for some weeks, however, and so strong has been the exception taken to some of its findings that there had been hopes of its withdrawal or modification. Its main criticism is that productivity in British shipyards has improved by only one per cent since 1951, compared with 3½ per cent in manufacturing industry and with great advances by foreign yards. This is attributed to bad labour relations, demarcation problems, technical backwardness, quality of management, existence of too many small firms, and lack of standardisation in ships and parts. Production control is said to be primitive, work study non-existent and personnel management old-fashioned. Some substance to these allegations came in a suggestion last week by Mr. T. W. D. Abell, in his presidential address to the Scottish Section of the Institute of Marine Engineers, that shipbuilding should follow the motor industry in grouping companies under a limited number of combines and standardising their products. Mr. Abell, who is managing director of David Rowan and Co., Limited, Glasgow, claims that more standardisation in the shipbuilding and marine engineering industry is the answer to foreign competition and envisages one big engineering concern supplying the main Clydeside yards. On the shipping side also there has been the fatuous and damaging strike of the tally clerks which, before resumption of work last Monday, had held up work in the Port of London for nearly four weeks.

Why Buy Ships Abroad?

IN all these circumstances it was not surprising that interest on the second day of the Conservative Party conference should focus on a motion which urged the Government to do all possible to ensure the continued development of an efficient and flourishing British mercantile marine. Its mover proposed that there should be more financial encouragement and that scrapping and rebuilding should take place after a ship was 20 years old. Old ships, he somewhat glibly suggested, could be bought and placed in reserve, easy credit terms granted to overseas shipowners who were prepared to have ships built in Britain, and the present 40 per cent investment allowance made permanent. Also emphasised was the need to produce order in the shipyards out of the chaos of unions and crafts which were no longer relevant to modern shipbuilding techniques. Replying, Mr. Marples contended that the British shipping industry had gone down because there were too many ships in the world chasing too few cargoes, while flag discrimination and nationalism were rampant. His Ministry would consider ways of helping the industry after conclusion of discussions now proceeding with the Shipbuilding Conference on what credit terms were offered abroad. For a long time he had been trying to persuade the Shipbuilding Advisory Committee to appoint a sub-committee to look into the future of the industry; this had now been agreed. One thing he would ask them to investigate was why British shipowners went abroad to buy their ships. Towards the close of the conference brief reference was made to nationalised industries, when Mr. Butler said the Government hoped soon to "review and revise" arrangements in some of them, starting with the railways. The shape of things to come he revealed in a subsequent television interview when he said that while the Government did not question the efficiency of the B.T.C. its organisation was too large and needed decentralising.

LEADING FEATURES IN THIS ISSUE

By A.D. 2146

CLAIMING that the road plan evolved for Lancashire is already 67 years behind schedule, Mr. James Drake, the forthright county surveyor and bridgemaster, has reported to the Lancaster County Highways and Bridges Committee that at the present rate of progress the 816 miles of modern roads due to be brought up to modern standards by 1979, acccording to the 1949 plan, will be finished in A.D. 2146. Instead of 299 miles having been tackled by now, only 45·5 miles has been achieved. It is only right, he says, that the true facts should be known, as it is abundantly clear that the present unsatisfactory position will deteriorate quickly unless a very much increased road improvement programme is approved by Parliament. The burden of ever-growing traffic on the out-of-date road system is becoming unbearable on the grounds of both safety and economy. By contrast, the motorways are almost accident free and have completely refuted the accusations that they will damage the amenities of the countryside. The average speed of road traffic in Lancashire is lower than anywhere except in London, a handicap to an industrialised county in which ribbon development on main routes in the thirties accentuates congestion and complicates widenings.

Some Air League Anxieties

IN a memorandum published this week, the Air League of the British Empire has expressed considerable anxiety regarding what it calls general aviation so far as Great Britain is concerned. It includes within this category executive and business flying, aerial work such as crop-spraying and photography, and pleasure and sporting flying. It suggests that the Government should make a clear declaration of when it is aiming at the expansion of this branch of aviation, and that a special department should be established within the Ministry of Aviation to implement this policy. Points which should be considered when formulating a national aerodrome and ground facilities policy include the freer use of R.A.F. aerodromes, particularly at weekends when they are normally closed, greater use of disused airfields, provision of three or four common radio frequencies for the private fliers—manufacturers should be encouraged to provide a cheap lightweight radio suitable for small aircraft. It is also maintained that there should be adequate radio navigational aids suitable for general aviation purposes, that there should be procedures to give the private pilot access to control zones, that there should be a unified Government air traffic central service, and that the airways minimum height should be kept as high as practicable. Another plea is for a reduction in Government charges and particularly the abolition of the fuel tax. It is argued that such developments would encourage a lively light aircraft industry, a purposeful active flying and gliding club movement, and an adequate ground organisation including airfield and radio facilities to encourage general aviation.

Reciprocity for Motor Industry

OPTIMISM was an essential element in the motor industry. It was self-reliant, not running to the Government at every turn of events, as its postwar development programmes had shown. Mr. Geoffrey Rootes, president of the Society of Motor Manufacturers and Traders, made this point at the annual banquet which precedes the opening of the Motor Show. They had, he thought, often been more helpful to the Government than vice versa in the past, but the problems at present facing them were perhaps more complex. They could be overcome with the ear of the Government. He referred to the credit squeeze and went on to say that the construction of new factories for cars or commercial vehicles in areas of unemployment at the request of the Government would involve them in real burdens, including transport costs and the duplication of plant and managements. He thought that this must be greatly in excess of any assistance they might have received and it was why he felt entitled to ask for consideration. In the presence of Lord Hailsham, Lord President of the Council and Minister for Science, Mr. Rootes made the point that expenditure by the Motor Industry Research Association was expected to be doubled in the next five years.

Yours Inaccurately

NEWSPAPERS often need correction, as is natural, perhaps, from the haste inherent in their compilation and production. Far from writing at leisure, with accuracy as their watchword, would-be correctors of press errors often set out new and original mistakes. A correspondent who quite reasonably chided *The Guardian* on the occasion of the last Sheffield tramcar for overlooking the Blackpool system, managed to suggest that Aberdeen, Dundee and Perth still enjoyed the benefits of tramway transport and engagingly confused the narrow-gauge model passenger-carrying tramway at Eastbourne with some non-existent municipal streetcar system, a strange error indeed in respect of the town which was the first to sponsor the municipal motor bus and which never could abide the idea of tramcars in its streets. Then Sir Roy Fedden, a great man in aeronautical engineering, saw fit to write to *The Daily Telegraph* on the shortcomings of steam locomotive engineers. Why had they sat back and never improved it? Partially aware of the experimentation associated with Mr. Oliver Bulleid, Sir Roy seems to overlook the work of improving the breed by Chapelon, Maunsell, Gresley, Hawksworth, Peppercorn and many others both here and abroad, all of which has contributed to much greater efficiency and reliability and much of which has been recorded in great detail in the archives of the Institution of Locomotive Engineers and other learned bodies, where it is readily accessible even to the air-minded.

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The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.

We desire to call the attention of our readers to the fact that Russell Court, 3-16 Woburn Place, London, W.C.1, is our sole London address, and that no connection exists between this newspaper and any other publications bearing somewhat similar titles.

A Testing Time for Hauliers

THE annual conference of the Road Haulage Association is a kind of high-water mark in haulage affairs. It provides members with an opportunity to do some serious thinking and for the transport world outside to recognise not only the problems but the mood of the industry. Whether the opportunity is always well taken is a moot point. Last week at Blackpool the impression might have been conveyed that road transport is capable of existing in a tight little world all its own. No one expressed any misgivings about, for example, the aggressive commercial approach of British Railways and its improving freight position on the one hand, or about the exacting standards set up by C-licensees on the other. True, the chairman, in his opening remarks, asserted that the mood was not one of complacency. It would be a bold man who would prophesy the directions in which road haulage will have advanced, held its own, or retired ten years hence. Seemingly most vulnerable is the long-distance haulier operating over the more popular trunk routes. He may well be the victim of the full measure of railway ambitions as well as ever more desperate rate-cutting from within the ranks. These are eventualities which bear discussion and merit the formulation of a more forward-looking policy by the Association. They would stand a better chance of being aired if larger operators would support the annual conference in larger numbers; with some honourable exceptions, they continue to shun it. Why this should be is not easy to understand; the T.R.T.A. and the bus operators' associations could not press their views with such force and reason were they not supported by the highest as well as the lowest in the land. It is manifestly short-sighted of these operators, and a severe handicap to the association, that it should be deprived of their balanced counsels and leavening experience.

The Odds Mount

SINCE so much was left unsaid last week it is perhaps worth exploring the point that events are forcing the road operator into a sharper and in some respects an exposed relationship with the outside world. The challenge of the railways and C-licensee is only part of the picture; the parlous rates situation, which leaves the industry vulnerable to pressure from within and without has already been referred to, and lastly there is what is shrewdly termed a general antipathy to the goods vehicle as soon as it shows itself on the highway. In short, never before have so many potentially inimical forces ganged up against the haulier simultaneously. Before attempting to crystal-gaze one's way into road haulage prospects in the decade that lies ahead it may be profitable to examine these relationships to see where they are tending. Hauliers, albeit in small numbers, profess themselves solicitous for the wellbeing of British Railways. This springs from the hard realisation (hard from a business man's viewpoint) that more revenue for the former means potentially fewer kicks for the latter and that when the one who, with rough justice, has been called "the sick man of transport" recovers, a more effective partnership in supplying the nation's needs may result.

Rates on the Slide

DESPITE what was suggested to the contrary at Blackpool there is no issue outstanding between independent operators and British Road Services. The emotion expended on what most thinking people regard as an outworn topic, namely the complete breakup of B.R.S., would have been better bestowed on the subject of rates. The two things are not unrelated. Only the most starry-eyed individualist can achieve any satisfaction from the continuous decline in the level of rates, despite annual wage increases and other rises in costs. B.R.S., through no fault of its own, has not been the stabilising influence that was hoped, save in the negative though still important sense that it has consistently declined traffic at ridiculous rates. It is significant that B.R.S. (if the special case of meat haulage is ignored) shows easily its poorest return in the general haulage sector. The point is not that it is here showing up badly against stiff competition but that independents have no reason for pride or satisfaction at their own record on charges. If this is the outcome of partial denationalisation the complete disappearance of B.R.S. could only breach the defences still wider. Moreover, any such action would run counter to the clearly expressed preferences of a majority of traders.

Diversification the Key to Success?

ON the surging C-licence front the picture is different again. It is generally supposed that the railways and not hauliers most often stand to lose when a trader extends his transport system. Certainly the haulier is more favourably placed in offering his services in substitution for the traders' own vehicles because of the similarity of thinking. But over and above this there is a re-kindling of interest in the employment of road carriers for warehousing and distribution, a swing back prompted by the spiralling, oft-times crippling, burden of capital need for investment in vehicles and premises. All this leads to the supposition that perhaps the most promising haulage business of the future is that which is broadly based, with a foot in both short- and medium-distance camps, allied to warehousing and redistribution. Over such distances road transport is hardly likely to forfeit its cost advantage over rail and it retains the attraction of reduced handling. The same is true of bulk transport, over maybe rather longer distances. If the prospects for general and long-distance haulage seem more sombre the outcome is very far from certain to go against the road operator. In the long run he has the tremendous asset of flexibility, both in mental outlook and operationally, enabling him to react quickly to new situations and new demands. The transport requirements of dynamic and mobile British industry, expressed in such terms as scheduled deliveries, minimum packing, and door-to-door handling between places probably remote from a railway depot, must continue to provide important outlets for that flexibility.

New Ideas, Old Problems

THROUGHOUT road transport there is no lack of technical advance to lend added weight to this conclusion. The articulated vehicle is firmly ensconced in many fields and as a further aid to productivity more and more use is made of maximum-load vehicles. Restrictions on loading and unloading times, coupled with the mounting waiting time experienced at some premises, have had their influence on articulation. An operator can no longer afford to leave a vehicle under load from Friday afternoon to Monday morning at the whim of a consignee, nor can he afford to transfer the load twice. Perhaps the articulated vehicle has been too successful in this direction; it ought not to become a substitute for a more accommodating attitude by both senders and consignees. The reduction of waiting time is one of the few remaining sources of increased productivity readily available to the operator. Mention must be made of the Roadrailer, a development new as the day which poses almost as many questions as it has uses. How far and how fast it will grow seems by general consent to be in the lap of British Railways. Independent operators, and for that matter B.R.S. or traders, can only route these units between points at which facilities are laid down and one guesses that much will hinge on the smooth working of those facilities and also on the timing and punctuality of the rail links. It is a development in line with modern thinking —that expensive time- and labour-consuming operations at railway freight termini can be cut out and greater emphasis placed upon the trunk-haul characteristics of rail transport. Twin topics which currently impinge upon the interest of a wider public are gross vehicle weight plating and smoking diesel exhausts. The first concerns road safety, the second brings in public antipathy. Both therefore merit early attention. Plating is aimed especially at the light-heavyweight 7-ton four-wheeler which may legally be overloaded by as much as three tons. It will enable the chassis manufacturers to sleep easier in their beds of nights and also perhaps to exert more pressure on people marketing modifications which increase payload without, for example, adequate regard to braking performance. As to diesel smoke screens, the haulier must be regarded as more often sinned against than sinning. Frequent maintenance undoubtedly pays dividends but other factors are in play. Attention is being turned to the quality of diesel fuel and to the introduction of smoke filters or additives. Removal of the excess-fuel device from the immediate control of the driver will not at once rid us of this obnoxious highway hazard.

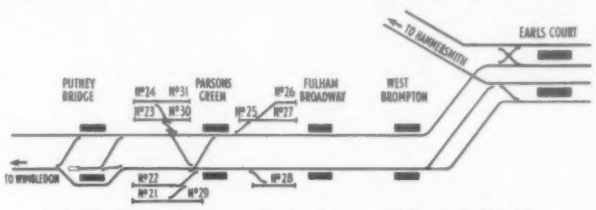
[News Summary appears on page 13]

DISTRICT LINE SIGNALLING

Programme Machines at Parsons Green and Putney Bridge

SUPERVISED FROM EARLS COURT

SIGNALLING on the London Transport District Line from Earls Court to Putney Bridge is being modernised and the junction and point operation has been arranged to be automatically effected by programme machines. The new signalling arrangements at Parsons Green were brought into use on the night of October 8-9 ready for the start of traffic on Sunday morning, October 9; those at Putney Bridge will follow in a few weeks' time.



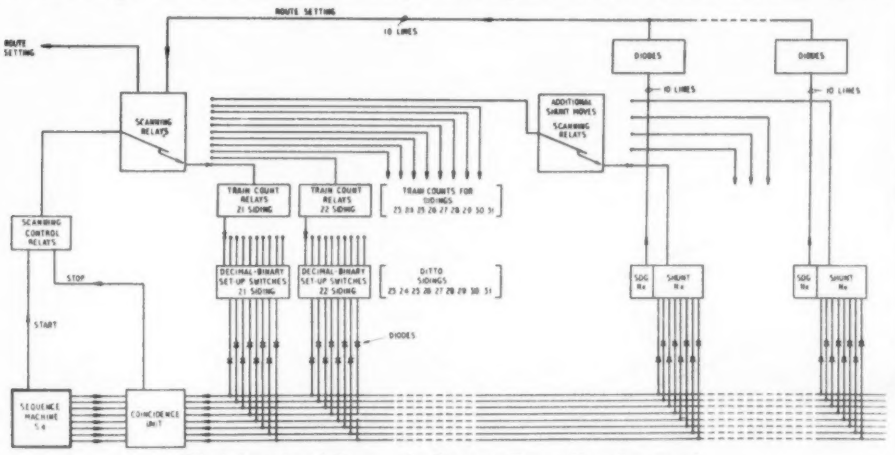
Track layout between Earls Court and Putney Bridge

The programme machines used are basically the same as those introduced on the Northern Line and at Watford (Metropolitan Line) in 1958, but important new features have been included in the present installation:

(1) The identification of all trains on the programme rolls is now by train number. This is punched on the roll in the form of a decimal-binary code used for reference purposes.

(2) A method of permitting some flexibility between the pre-prepared programme and the shunting movements on the ground at the Parsons Green sidings has been provided.

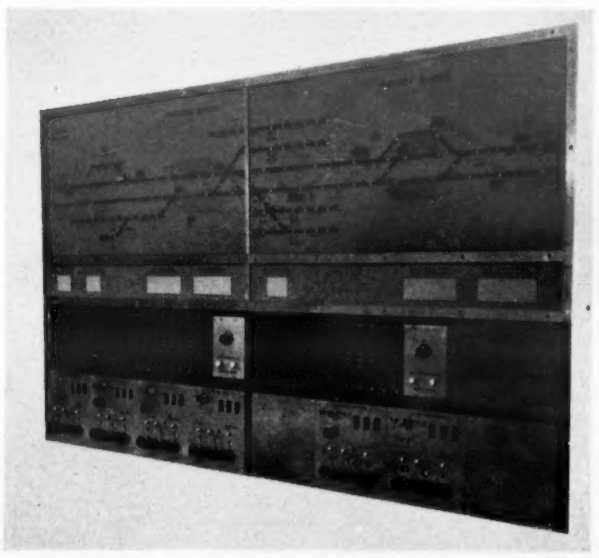
At Parsons Green there is a rolling stock depot with 10 sidings, but the working of the depot is made difficult because the sidings are located on both sides of the two running tracks and at both ends of the station, so that movement from one siding to another may mean routeing a train which is being shunted to run for part of the distance over the main line.

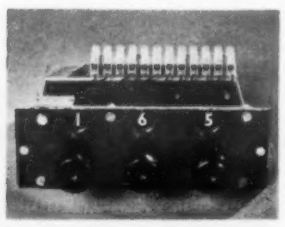


Block functional diagram for Parsons Green allocation panel

Variable Siding Movements

It is probable that most of the daily train movements and movements needed for the shunting of trains can be predicted, but there are, from time to time, variations in the pattern of traffic working into and out of the sidings, and a special shunt "siding allocation panel" has been provided to cover this feature of the working. The siding allocation panel is situated in the yardmaster's office and is arranged to give a means of pre-setting the required movements. It also acts as a reference panel from which shunters or train staff can see the shunting movements which have to be carried out.





Supervisory panel at Earls Court, left, showing signalling and programme machine controls and track diagram and (above) switch unit for siding allocation panel

A supervision room from which the normally automatic signalling at Parsons Green and Putney Bridge can in emergency be controlled by push-button operation has been built at Earls Court. In connection with the new signalling arrangements, the signal boxes at Parsons Green and Putney Bridge are being closed and replaced by interlocking machines of the standard London Transport type housed in specially built relay rooms at the stations concerned. The interlocking machines are themselves controlled by programme machines housed in the same rooms.

Programme Machine

The programme rolls used on the programme machines are of plastic material on which the details of each train to be dealt with are punched in proper sequence. The details include the destination of the train, its number in the working timetable, and the time of departure from platform starting signal or sidings as the case may be. The position of the holes in each line of coded information affects electrical circuits which set up the required route for each train. The machines are stepped from one line of information to the next by the passage of the train to which the route already set up refers, and are then ready to deal with the next train.

These machines are known as sequence machines, and one is normally provided for each converging or diverging junction. The sequence machines do not themselves set up routes but give the necessary instructions to an interlocking machine of the normal London Transport type. The interlocking machines are similar to those controlled by push-buttons from a signalbox in many installations, and they ensure that the essential safety features and reliability of mechanical interlocking systems are fully maintained.

Time Machine

There is a second arrangement of programme machine, known as a time machine, which acts as a controlling clock. The time machine carries similar information to that on the sequence machine but is not stepped for the passage of each train; it is stepped after the lapse of time representing the interval between one train and the next. It counts in half-minutes, the half-minute impulses being obtained from a master clock. The programme roll is coded to indicate the number of half-minutes between trains, and the time machine counts these half-minutes and then steps at the correct time.

Thus the time machine catches up with the sequence machine only at the time the train is booked. When the programmes on both machines coincide, the necessary signalling movements are initiated. To keep the time machine programme rolls within convenient limits of complexity it is now usual to use one time machine for every two sequence machines. The circuits controlling the programme machines are so arranged that after the last train of the day has passed the machines will automatically rewind the programme roll ready for the start of traffic the next day. Separate rolls are used for Saturday and Sunday working.

Parsons Green

Parsons Green is a two-platform station with a complex of stabling sidings. As indicated, these are at both ends of the station and on both sides of the running lines, i.e. four groups. They are known collectively as Parsons Green Depot. All the movements required to provide service trains from the sidings and to stable trains going out of service are known and are shown in the timetable. Certain of the movements between one siding and another sometimes cannot be predicted until quite a short time before the movement has to take place, and whilst it is desirable to keep to a regular pattern of working, provision must be made for particular trains to be stabled in, or started out from, different sidings.

In preparing a programme roll, provision has been made for this complexity of working by punching on the roll not only all the timetabled movements but also additional punching in the form of a "permission to shunt." These "permission to shunt" periods are each given an individual

(*Continued on page* 17)

LORRY—BUS—COACH

Twin-Door Double-Decker Ready

THE new-style double-decker, with rear entrance and front exit and two staircases, which has been converted for experimental service by Blackpool Corporation Transport is now only awaiting the sanction of the Traffic Commissioners before it can enter service. The bus is a 27 ft. long 1957 Leyland Titan. Just inside the entrance there is a desk for the conductor. It is equipped with an electrically-operated T.I.M. type 12 ticket machine and the conductor is also provided with an instrument, manufactured in the workshops, which records when the upper deck is full. A green light shows on a panel whenever a seat is vacated. The bus will carry 48 seated passengers—14 in the lower deck and 30 in the upper saloon.

Liverpool Contractors Acquired

TWO associated Liverpool haulage concerns have been bought by Consolidated Tin Smelters Limited, for £305,000. They are the Kirkdale Haulage Co., Limited, and William Lewis, Limited. Consolidated Tin Smelters has a subsidiary, Williams, Harvey and Co., Limited, with works at Bootle.

Slick Operation by Evening Paper

ALL 200 or so delivery vans of the *Star*—and their drivers—were standing idle at the twin printing houses in Bouverie Street and at Commercial Wharf, Southwark, on Tuesday morning following the unheralded incorporation of this London evening paper with the *Evening News*. But overnight they had all been fitted out with large posters advertising the new affiliation and by evening some were on the streets again—delivering extra copies of the *Evening News and Star*. The battle for the circulation of the *Star* was on.

Fish Merchants Upset

UNLESS the London Midland Region of British Railways puts its house in order much fish traffic may soon be transferred on a regular basis to road hauliers. This is the implication of a statement in the monthly publication of the London Fish Merchants' Association (Billingsgate), which strongly attacks the railway for difficulties over the carriage of fish to the London market. The point at issue appears to be the railways' refusal to meet a £1,375 claim by Fleetwood Fish Merchants' Association as compensation for fish condemned when it was left in wagons at Broad Street goods depot, London, because of the strike by cartage men in July. The writer complains that British Railways is evading responsibility by hiding behind a clause which covered strike action. "Ordinary trading concerns have to accept responsibility for their employees, but not British Railways," the writer adds. "We are disgusted that the trade has to bear the brunt of British Railways' inability to control its own staff." During the strike period, Fleetwood fish went by road transport which was ready, willing and able to do the whole or part of the job, he says. The president of the Fleetwood Fish Merchants' Association had no comment to make about the compensation claim. All he would say was: "Negotiations are still in progress."

Big Gap in London Bus Wage Talks

WHEN discussion of the latest wage claim by London busmen took place on Friday last week, London Transport made an immediate offer of a 10s. increase, plus the bonus scheme, which has been twice rejected. The union negotiators described it as completely inadequate. They have been talking in terms of parity with the Underground staff, which would mean increases of the order of £2 14s. There was an adjournment until this week. The employers' side intimated that they could not contemplate any larger award, which would lead to increased fares.

Unusual Bus Station Decision

ONLY buses proceeding west are to be required to use the new bus station proposed behind the town hall at Spennymoor in County Durham. The Minister of Transport has reached this conclusion after hearing appeals by United, Northern General and other operators against using the station at all. The Minister finds that there were strong grounds of safety and amenity for moving bus stops to the station. But eastbound buses on through routes would have to cross the traffic stream twice to get to it and he proposes they should be exempted, at least until some experience has been gained of the new pattern of traffic in the High Street.

The latest in coach bodies: left, A.E.C. Reliance for Lloyd of Nuneaton, with the Harrington Cavalier 37-seat body incorporating Clayton Dewandre underseat recirculatory heaters—it is at Skyport Hotel outside London Airport; right, one of 10 similar chassis with 34-seat Burlingham touring bodies for Scottish Omnibuses—the livery is red and cream

Bristol Meat Hauliers Take Over

BY the acquisition this week of the whole of the £25,000 issued share capital of Meatransit Limited, London, S.W.12, Transport (Bristol), Limited, and its associated companies now have a fleet of more than 100 insulated and refrigerated vehicles operating throughout England and Scotland. They have depots at Bristol, London, Plymouth, Glasgow, Cupar (Fifeshire) and Grantown-on-Spey. The new takeover brings in 22 vehicles. Meatransit has an unusual history. It was formed in 1949, at the time of nationalisation, out of the meat haulage fleet of Metropolitan Transport Supply Co., Limited, of Bow, the transport subsidiary of International Tea Company's Stores Limited. Among the original shareholders were directors of Matthews and Co. (Carriers), Limited, Market Transport, Limited, H. Tidd and Sons, and Wright Brothers, Hanwell. It functioned in London and Liverpool. It now leaves the Balham depot which it has shared with Market Transport for a new address in Shoreditch. Mr. Peter J. Wise and Mr. J. Reid are the sole directors following the takeover.

Rates Should Go Up 10 Per Cent

AFTER an all-day meeting on Wednesday, the national rates committee of the R.H.A. recommended an increase in road haulage charges by 10 per cent from November 1. It said that carriers in certain specialised trades and others experiencing delays through traffic congestion, dock or industrial delays merited a higher increase. The recommendation takes account of the latest wage proposals which are likely to be implemented within the next month or so. The last rates recommendation was put out in May, 1957.

Congestion Causes Bus Route Changes

CONSTRUCTION of an underpass at the Poplar entrance to Blackwall Tunnel has dramatically cut the traffic congestion at this point but, ironically, London Transport has now decided that it must split bus routes through the tunnel because of traffic congestion which still prevails. This arises from three main sources: slow-moving queues in the old tunnel (now being duplicated), vehicular breakdowns in it, and serious congestion elsewhere in East Greenwich, particularly at the junction of Woolwich Road and Westcombe Hill. From October 12 the following route alterations have been made in this area. They relate solely to Monday-Friday operations; weekend services are unchanged throughout:

Route 70 withdrawn between Greenwich Church and Eltham; 108 curtailed to operate Bromley-by-Bow—Lower Sydenham (Bell Green) (evening, Lewisham only); 108A operates at peak only; new route 108B runs Greenwich (Blackwall Tunnel)—Crystal Palace, via Old Dover Road, Delacourt Road and Shooters Hill Road at Blackheath; 228 is extended via route 70 to run Chislehurst—Rotherhithe (Red Lion), near Surrey Docks Station; new route 228A runs Chislehurst—Greenwich (Blackwall Tunnel).

Route alterations elsewhere in the Central Area: 12 withdrawn on Sunday between Shepherds Bush and Oxford Circus; 34 no longer operates to Leyton (Downsell Road) on Saturday; 63 runs daily to Crystal Palace; 75 extended Monday—Friday to South Croydon Garage (evening, West Croydon only); 110 extended Monday—Friday peak to Cranford (High Street); 111 now operates daily Cranford (High Street)—Hanworth (Brown Bear), extended Saturday afternoon to Twickenham Station; 125 curtailed Sunday to be North Finchley—Winchmore Hill; 156 curtailed Sunday to be Morden Station—Sutton Garage, via St. Helier; 161/161A curtailed Monday—Friday peak at Victoria Way (Woolwich Road); 192 now has a Sunday p.m. service, Lewisham—Woolwich (General Gordon Place); 275 curtailed Saturday at Wood Green (L.T. Station).

J. and H. Spills the Beans

SINCE this time last year J. and H. Transport Services (Peckham), Limited, has invested £650,000 in development. In recent months it has acquired six haulage businesses: Valliant Transport (St. Albans) Limited, H. I. Huyton, Limited, St. Helens, and H. J. Moseley, Limited, St. John's Garage (Kernan), Limited, Barcliffe Transport, Limited, and F. A. Jeune and Son, Limited, all in London. The total group fleet now in operation comprises 148 heavy vehicles of a carrying capacity of not less than 10 tons and up to 20 tons. This long-distance haulier only began operations 11 years ago when the present managing director, 36-year-old Mr. W. A. Heymann, went into partnership with a former London bus driver, Mr. F. A. Jeune. This year the company expects to reach a turnover of £2 million. The financial year ends on March 31, 1961.

It has recently purchased a large storage warehouse in Birkenhead. Here are stored Kelvinator refrigerators which are manufactured nearby and which J. and H. Transport distributes throughout the country. Also acquired were two smaller depots in Leeds and Glasgow, and a large transport and fuel station in Hertfordshire. New depots are to be opened at Newcastle upon Tyne and Coventry, and more up-to-date facilities are proposed in Birmingham and Sheffield. At Mersey Street, Liverpool, depot, bought for £15,000 last year, mechanical handling aids the dispatch of 30 heavy vehicles every evening. Liverpool, claims J. and H., handles "the cream" of local industries. J. and H. drivers are said to be among the highest paid in the country, as with trip money and subsistence allowance they average about £25 per week. In return they co-operate in such things as a really early start to beat dock queues. They benefit under bonus schemes which the firm runs—£2 a quarter for good conduct and the cleanliness and maintenance of their vehicles, a no-accident bonus of £15 per annum.

The company has recently changed its insurance policy and is now covered only in the normal way for third-party risks, fire and theft. Before this insurance premiums alone for accidents amounted to £6,000. It now deposits £1,000 a month with United Dominions Trust. Half of this is regarded as normal reserve build-up, while it can draw on the other half—amounting to £6,000 a year—to pay out the cost of major repairs and replacements. At the end of the year the sum remaining from this £6,000 is added to the reserve but before this 10 per cent of the balance is paid out in the form of a third bonus to drivers. There is also a non-contributory pension scheme, which gives a life cover of between £2,000 and £6,500, or after retirement a pension ranging from £4 a week to £13 a week. Mr. Heymann states that the company has even further expansion programmes in hand, and he is proud of the fact that it has been able to build up a modern fleet of vehicles without having once to resort to bank loans or overdrafts. All his vehicles, he admits, have been bought on hire purchase.

Bus and Coach Developments

W. H. Leadbetter (Eagle Coaches), Smethwick, seeks licences held by A. Grainger (Smethwick), Limited.

A. H. Fielding (Empress Coaches), Bristol, applies for two workers' express services licensed to Bristol Co-operative Society, Limited.

Royal Blue Coach and Transport Co., Limited, Pytchley, seeks the excursions and tours from Kettering of Buckby's Coaches (L. J. Adams).

United Counties Omnibus Co., Limited, applies to operate the summer timetable of its Nottingham—London express service throughout the year. This includes journeys via M1.

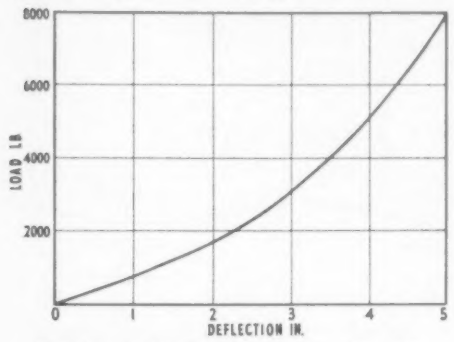
Wilts and Dorset Motor Services, Limited, proposes a new weekday service with one-man buses between Salisbury (New Canal) and Laverstock (Post Office) via St. Marks Church.

Charles W. Banfield, Limited, is seeking various new and revised licences for express services and excursions and tours from points in South London. If granted, licences held by certain associated companies would be surrendered.

COMMERCIAL VEHICLE RUBBER SPRING

Metalastik Parallel-Link Unit

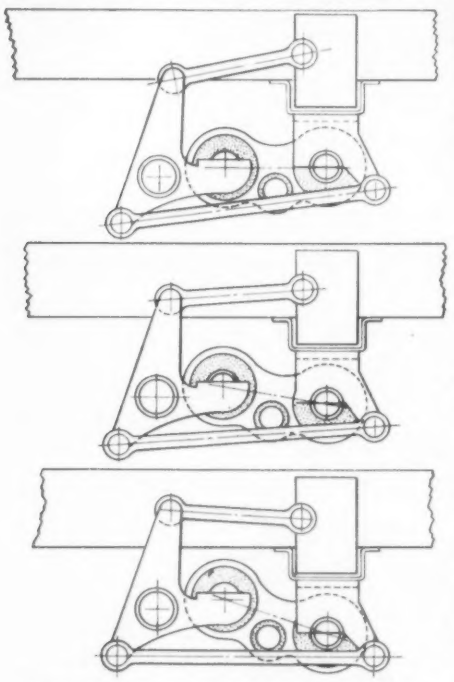
SIMPLICITY, light weight, freedom from maintenance requirement and characteristics particularly suitable for commercial vehicle application are features of a new parallel-link rubber suspension system introduced by Metalastik, Limited, at the recent Commercial Motor Show. It has been developed as a complete suspension system for fitting to existing types of chassis frame



Typical load-deflection curve for the Metalastik parallel-link rubber suspension unit developed for commercial vehicles

with little additional structure; it provides the changes of stiffness with loading desirable for good riding under all states of load and adequate control of roll and of forces due to cornering, acceleration and braking.

The principle of the new unit is similar to that of other Metalastik toggle-link systems. A typical load-deflection curve is shown in one of the accompanying illustrations. It is applicable to the front or rear axles of freight and passenger vehicles, trailers and semi-trailers and variations in design are possible to provide for special requirements. The design is not intended to supersede the



Three positions of the Metalastik suspension under different loadings (refer to text)

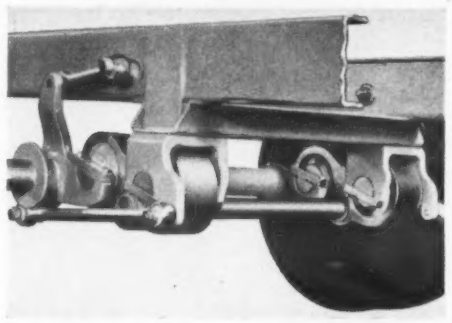
Metalastik toggle-link rear-axle suspension and directly loaded independent front-suspension units developed in collaboration with B.M.M.O. for Midland "Red" buses.

One of our illustrations shows three positions of the suspension assembly. In the first position the centre link, which carries the large torsion bushes forming the sole means of springing, is horizontal and is slightly compressed, putting both the control links in tension. In this position the suspension carries the tare weight of the vehicle. The spring stiffness due to the torsion of the large bushes, increased slightly by the torsion of the top and bottom link bushes, is partially counterbalanced by the negative stiffness due to compression of the centre link. In the second position the centre or torsion link is inclined to the two control links and its bushes are concentric and therefore loaded in torsion only. The stiffness of the suspension is due almost entirely to rubber in torsion. In the third position the link is more inclined and is extended against the radial resistance of the bushes. This radial resistance gives a further stiffness to the spring which increases rapidly with over-travel.

Application

A model exhibited at Earls Court (illustrated below) showed typical proportions of a chassis for a lorry of about 7 tons capacity. The construction is equally adaptable to a live rear or front axle, or to trailer axles. The whole of the attachment to the frame is through sidemember webs and a single crossmember in a position considered favourable for stressing. The torsion link is moulded in one piece and the centre sleeves of its bushes are reduced to a semi-circular form at the ends, so that they can be clamped to give a light economical and rigid joint to the frame and axle brackets. These brackets also carry the lower control link which is by far the more heavily loaded, thus keeping the rather heavy reaction forces on the rubber within the suspension unit and avoiding overloading of the chassis frame.

The tubular stabiliser bar connecting the torsion links on opposite sides of the chassis has two main functions. It provides the extra roll stiffness which is necessary on a suspension having a very low rate with the vehicle unladen and it increases greatly the transverse stiffness, rendering unnecessary any device equivalent to the outward splaying of the links on the usual Metalastik toggle-link system, or a Panhard rod. Connection to the torsion links



Photograph of a model indicating the proportions of the new suspension system applied to a chassis of 7 tons capacity

is through Metalastik bushes of comparatively high stiffness, part of the allowance for roll being in the metal of the tube and part in the rubber of the bushes.

Alternative Arrangements

The example shown has control links of different length, the top link being the shorter. The bottom link has by far the greater effect upon the spring characteristics, but a large difference in length between the two control links results in some relative twist of the two ends of the axle due to maximum roll. Up to a point this can be a good thing, providing extra stabilisation and improving the tilt test angle (for buses). Some trailer axles and all I-section front axles are flexible enough in torsion to allow this relative twist and it can sometimes be advantageous to put the top link facing forwards instead of backwards. This does not seem to be admissible however on a live rear axle, which offers a very high resistance to relative twist of its ends. The alternative for most large live axles is a single control link in the middle of the axle attached either to the crossmember which supports the torsion link, or to the next crossmember in front of the axle.

Use of the latest developments in rubber compounding should render height adjustment unnecessary, but a limited amount of resetting is possible by arranging the clamping straps of the torsion bush centres so that the fastening screws can be moved up and down.

Buses and coaches at the recent Hatfield rally of the Vintage Passenger Vehicle Society ("Modern Transport," October 8) ranged deliberately from the finished renovation to those in the early stages of such work. Above: Albion Victor with 20-seat Abbott body in the livery of King Alfred Motor Services, Winchester, and a Thornycroft A2 Long with Strachan body; right, an ex-London Transport STL-type A.E.C. Regent. Below: A 1929 Dennis GL toastrack worked for many years by Llandudno U.D.C., and a view from the STL showing a Weymann-bodied Gilford 168OT, a Leyland Lion LT5A and a Leyland Lion PLSC, both with Leyland bodies

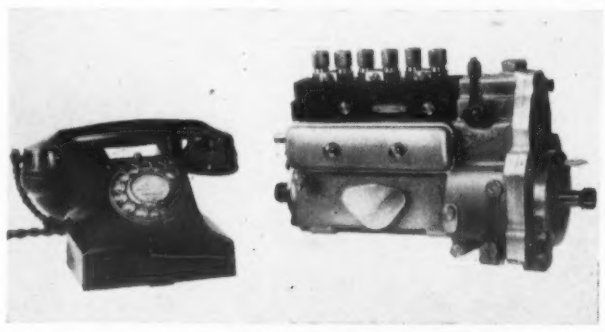
LONDON MOTOR SHOW

Novelty in the Gallery

DEPRESSING as have been some reports of the recent difficulties of the private car section of the motor industry, the 45th International Motor Exhibition now open at Earls Court presents as glittering and comprehensive a spectacle as ever. In fact, as far as the vehicles themselves are concerned, there is a record number of over 360 on display, the latest products from the factories of Britain and nine other countries, and their presentation is on a more spacious scale than has been possible hitherto as this year for the first time boats and trailer caravans, which now have their separate exhibitions, are excluded.

Unique spare wheel by Dunlop seen fitted to a Morris Minor car and (right) out of service, when it is only one inch thick; a small cylinder of CO_2 is carried for inflation

The setbacks in the industry during recent months were described by the Hon. Geoffrey Rootes, president of the Society of Motor Manufacturers and Traders, at his eve-of-show press conference as a general seasonal fluctuation—a temporary phase only. World demand was expanding and would probably double in the next decade; the present slackening in trade would not deter the industry's large-scale expansion projects. Mr. Rootes said that the national objective should be directed simply and solely towards price reductions; healthy home sales permitted wider spread of costs and a greater chance of reduced prices overseas. In this connection the industry was far more concerned with purchase tax than about limits on hire purchase (though it looked there for some immediate relief) and the one sure step towards achieving these lower prices was the abolition or substantial reduction of this sales-stifling tax.

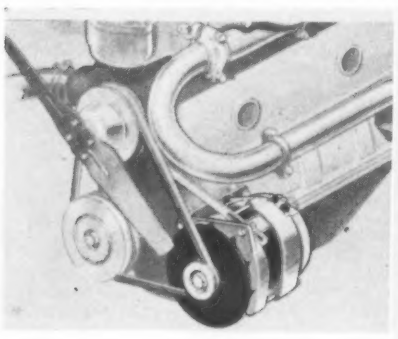


Simms six-cylinder Minimec fuel-injection pump with built-in mechanical governor compared in size with a telephone

Design Trends

Among the design trends to be observed on the vehicle manufacturers' stands are a number that aim at improved safety. These include the sealed-beam headlamp units and the adoption on some larger cars of the four-headlamp system, which together provide significant improvement in vision and reduction of dazzle. Disc brakes and automatic transmission control, use of both of which on normal family saloons is growing, also make their make the exhibited vehicles different from or safer or more efficient than their predecessors can be seen to greater advantage on the stands in the gallery at Earls Court. Some of these will already have been seen at the recent Commercial Motor Show and were described in our issue dated October 1. Other new developments are referred to in the following paragraphs.

Automotive Products has among the wide range of clutches, filters and self-lubricating joints of its associated companies a new Purolator water-oil separator and the Thompson retarder—a hydraulically operated auxiliary transmission brake. An opportunity to examine the new Exide Auto-fil battery, which reduces topping up to a simple 30-sec. operation, is given on the Chloride Batteries stand. Illustrating its position as a pioneer in high-quality coachwork finishes, Robt. Ingham Clark and Company strikes a note of nostalgia for its older visitors by reproducing on its stand the bar of the old Gaiety Theatre and presenting a series of displays dealing with successive eras of street transport vehicles.

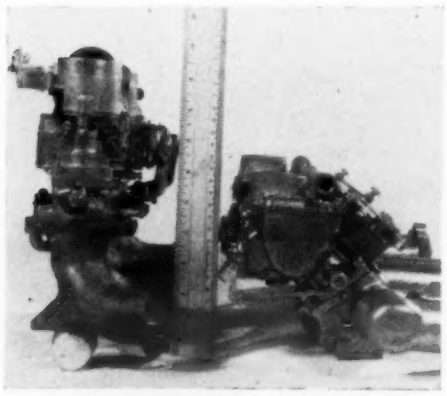


Lucas 2AC alternating-current generator in typical application; right, components of the Pirelli BS3 replaceable-tread tyre

Economical Spare Wheel

Dunlop Rim and Wheel Company introduces a novel spare wheel and tyre, which reduces the problem of where to stow this accessory in small delivery vans. The new item is light in weight and is no more than 1 in. thick when deflated for stowage. A 9-in. long cylinder of carbon dioxide is carried for inflating the tyre to correct pressure when required in emergency, though it can also be inflated conventionally. When deflated, the tyre resumes its original economical shape. The company also shows a working example of the rubber suspension unit fitted to B.M.C. small independently sprung cars and vans and a Dunlop disc brake fitted with the company's mechanical servo unit. The Dunlop stand in the service equipment section carries samples of a new floor covering—Hytone, which comprises hardwearing laminated synthetic topping in a variety of bright colours on a rubber base.

Prominently displayed on the Girling stand is a working exhibit embodying a complete braking system of disc front and drum rear brakes. The system employs a mechanical servo with tandem hydraulic master cylinder and independent hydraulic lines to front and rear axles; the mechanical servo is designed to provide hydraulic boost proportional to pedal pressure.



Solex B32 PIH semi-downdraught carburetter illustrating low height compared with normal 32-mm downdraught instrument

Thin-Wall Cromard Liners

Wider potential application of hard-chromed cylinder liners, with their remarkable low wear rates, is presaged by the new Cromard thin-wall liners shown by Laystall Engineering Company. A new electrostatic flock-coating process for polyurethene and polyether foams is shown by Intalok, which also exhibits its Spacemaker lightweight seats and seat spring cases. Key-Leather Company shows a number of new heater-demister units designed for specific makes and types of vehicles

(*Continued on page 8*)

contribution to greater safety. Relief from the winter-time nuisance of run-down batteries on vehicles used principally on short journeys is perhaps heralded by the introduction into series production of alternating-current generators, which can meet the higher electrical loads of modern vehicles down to quite low engine speeds.

Many of the components and accessories that

LONDON MOTOR SHOW

(*Continued from page 7*)

and a wide range of other new accessories, including anti-mist screens, a vacuum gauge for monitoring engine efficiency and a useful set of cables and clips for tapping power from a slave battery or other vehicle to obtain a quick flat-battery start.

Joseph Lucas companies show the new all-glass sealed-beam headlamp units and the four-headlamp system, which are introduced into Europe for the first time, as well as a working demonstration of the Lucas 2AC alternating-current generator designed to show battery charging at engine idling speeds. A short colour film entitled *See And Be Seen*, produced specially for the Motor Show, is being shown on the stand continuously throughout each day. New products introduced by Trico-Folberth include the Roto-Matic screen washer, designed to provide a powerful 3-sec. spray from a rotary control on the dash, and a preparation named Screen-Glo for removing persistent smears from windscreens.

New Tyre Construction

As well as its very wide range of bonded-rubber mountings, couplings and other accessories, Metalastik shows a new item of suspension equipment—a rubber auxiliary spring. An entirely new approach to tyre construction, introduced originally by Pirelli some months ago, is introduced to the British public on that company's stand, where various examples of the replaceable-tread BS3 tyre produced at the Burton on Trent factory illustrate the versatility and advantages of the new item.

Several advantageous features are evident in a new carburetter introduced by Solex. The Solex B32 PIH carburetter is an integral semi-downdraught unit combining advantages of down-draught and horizontal designs. It has very low height and two float chambers and short passages to minimise the effects of surge at high tilt angles. New items on the Simms Motor Units stand include the Minimec diesel fuel-injection pump—claimed to be the smallest in-line pump in the world, an impregnated-paper diesel fuel filter, a range of fog and spot lamps and a 4½-in. axial-engagement starter motor. The company also introduces a new system of petrol injection, claimed to provide many advantages and to cost little more than the carburetter it replaces.

AMPHIBIOUS CARGO CARRIER

Alvis Six-By-Six Development

POSSIBILITIES in other than the military field are predictable for a new six-wheel-drive amphibious cargo carrier developed as a private venture by Alvis, Limited, Coventry. Named Stalwart, the vehicle represents a logical development of the company's other military and specialised vehicle designs, which include the Saladin armoured car, Saracen armoured carrier and six-by-six fire-crash tender.

The design is based on the Alvis independently sprung six-wheel-drive four-wheel-steering concept, which in battle conditions retains mobility with up to two wheels (except both leading wheels) lost. It is powered by a Rolls-Royce 220-b.h.p. petrol engine driving through an epicyclic gearbox providing five forward and five reverse speeds. It has a full forward-control cab and a lorry body designed for a 5½-ton payload. Performance figures realised in tests of the prototype indicate a fully loaded top speed of 54 m.p.h. and gradient ability of 1 in 4.

Cross-country performance is said to be superior to that of any other wheeled cargo carrier and equal to that of most tracked vehicles, without the disadvantages of high maintenance costs and damaging effects of tracks. In recent tests, the Stalwart is said to have overcome vertical obstructions 18 in. high and cleared trenches up to 5 ft. wide. It has a fuel range of 400 miles.

The vehicle is amphibious and as soon as land trials have been completed it is to be fitted with two turbo-propulsion units as an integral feature, which are expected to provide a speed on water of 5 knots.

Alvis six-by-six 5½-ton cargo carrier on cross-country trials

START ON SEVERN BRIDGE

Completion by 1965 or 1966

AN early start to work on the £16 million Severn Bridge scheme and completion by 1965-66 was indicated in a recent Ministry of Transport announcement. Tenders have been invited for construction of the foundations and substructure of the bridge and of access roads to the site. Erection of the bridge superstructure and the building of the Wye Bridge and eastern and western approach roads will be carried out by further contracts, timed to enable the whole scheme to proceed smoothly to its planned completion within five to six years. In the interests of economy and efficiency, the project is being phased with the construction of the Forth Road Bridge, now well under way.

The proposed suspension bridge, which will cross the Severn between Aust and Beachley, where a motor ferry now operates, will have a main span of 3,240 ft. and is expected to be the fifth largest span bridge in the world. It will cost about £11 million, while the Wye Bridge, viaduct and approach roads linking the bridges with the A38 road at Almondsbury on the east and the A48 at Crick on the west will cost a further £5 million.

Negotiations for acquisition of land necessary to start work on the Severn Bridge are nearing completion. The tenders now being invited for work on the bridge foundations and access to the site represent the first stage of this vast project.

Massive Piers

The first contract will provide for the construction of the two main piers forming the bases of the steel towers; the anchorages for the main cables; the approach viaduct on the Aust side; and the access road to it. The east main pier (on the Aust side) and the east anchorage will both be constructed on the tidal foreshore of the river, using hollow precast concrete blocks. These will be placed in position when the tide is low, and joined together with steel reinforcement and concrete filling. The pier will be 140 ft. long, 42 ft. wide and 63 ft. high, completely solid. The anchorage will be a pair of massive blocks 145 ft. long, 40 ft. wide and 120 ft. high, separated by an enclosed space and each containing some hollow chambers and galleries.

On the Welsh side of the river, the west main pier will be similar to that opposite, but will be supported on caissons, which must first be sunk in the river bed down to a firm base. The west anchorage will be similar to the east, but constructed on dry land. The east approach viaduct will run from the Aust Cliff to the east anchorage in three spans of 170 ft. each.

40,000 Tons of Steel

The Severn Bridge itself will be a steel suspension bridge on concrete piers with steel towers about 470 ft. high. The main span will be 3,240 ft.—only slightly less than the 3,300-ft. span of the Forth Road Bridge—and each of the two side spans will be 1,000 ft. long. The road level will be approximately 130 ft. above high water mark of ordinary tides at the piers and 150 ft. in the centre. Under conditions of maximum temperature and loading, the minimum height clearance for navigation at the centre of the span will be 120 ft. The width between parapets of the bridge will be 118 ft. Twin 24-ft. carriageways will be constructed and provision will be made for cycle tracks and footpaths.

The bridge over the River Wye will be 1,340 ft. long and will have twin carriageways, cycle tracks and footpaths. It is estimated that 40,000 tons of steel and 120,000 tons of cement will be required for the two bridges and approach viaducts. The new approach roads, several miles in length, will be restricted to motor traffic, though cycle and pedestrian traffic will be allowed to use the bridges.

Saving of 50 Miles

The work now proposed will include measures to make possible the maintenance of the present ferry service between Beachley and Aust at least until the bridge is complete and open to traffic. At present however much of the traffic from Bristol and Somerset going to towns on the South Wales coast takes the route through Gloucester. The bridge will cut 50 miles from this journey as well as helping to relieve traffic congestion in towns on the longer route.

Access to the road over the bridge, apart from terminal junctions on A38 to the east and A48 on the west, will be limited to two junctions with existing major roads. These will be with the Aust—Almondsbury road (B4461) by means of a spur road at Aust and with the Newhouse Farm road and the future Wye Valley link road.

The schemes for the bridges over the Severn and Wye and the immediate approach roads were prepared by Messrs. Mott, Hay and Anderson, as consulting engineers, in association with Messrs. Freeman, Fox and Partners. Sir Percy Thomas is the consulting architect. The final design of the Severn Bridge is now being considered by the Royal Fine Art Commission.

The Minister of Transport intends that the Severn and Wye Bridges, in common with other major bridge and tunnel projects, should be financed by tolls. Details of these charges will be worked out during construction of the bridge; a special Act will be necessary to empower the Minister to impose them.

With the exception of the new Forth Road Bridge, other larger bridges are all in the United States—the Golden Gate Bridge at San Francisco (4,200 ft.); the George Washington Bridge in New York (3,500 ft.); and the new Mackinac Bridge in Michigan (3,800 ft.).

Oldham and Son, Limited, announces that the address of its Birmingham office and depot has been changed to Norwood Road, Bordesley Green, Birmingham, 9. The telephone number remains Birmingham Victoria 1994.

OFFICIAL NOTICE

CUSTOMS REQUIREMENTS

TRAFFIC BETWEEN GREAT BRITAIN AND THE REPUBLIC OF IRELAND
(Merchandise and Live Stock by Goods and Passenger Services)

THE British and Irish Railway Undertakings and Cross Channel Shipping Companies hereby give notice that the Charges for Customs Clearance Services on traffic between places in Great Britain and places in the Republic of Ireland will be amended on and from 1st November, 1960. (Details will be supplied on application.)

CONTINENTAL PERISHABLES TRAFFIC

New Southern Region Depot at Hither Green

FASTER HANDLING OF MORE PRODUCE

AS already announced in MODERN TRANSPORT the new Southern Region depot for perishables traffic from the Continent was opened at Hither Green on October 10. It provides much greater capacity for handling through wagons from the Continent, brought by the Dunkerque—Dover train ferry, and their loads. Until now highly-perishable traffic—mainly fruit, flowers and vegetables—has been handled at Southwark Depot with no warehouse accommodation and no siding facilities for stabling and sorting wagons. This meant that when the wagons had been unloaded they had to be sent to Bricklayers Arms for sorting, and that at peak periods some incoming wagons had to be stabled at stations along the route before going into Southwark or diverted for unloading to Battersea Wharf, where it was necessary to provide extra staff.

Electric locomotive, drawing current from the overhead in the yard limits, approaching the new Southern Region Hither Green perishables depot with Continental wagons from France, Spain and Italy

Site

The site for the new depot was selected on the up side of the London—Dover main line between Hither Green and Grove Park stations; advantages of the site were:

(*a*) Next to Hither Green marshalling yard, for interchange of traffic with other regions;
(*b*) on the direct route from London to Dover and the Dunkerque train ferry;
(*c*) outside the dense London traffic area; and
(*d*) close to the South Circular Road (A205).

The depot has a goods shed about 1,000 ft. long and 150 ft. wide, composed of two unequal spans. The one nearest the main line contains a rail siding with an unloading dock, 50 ft. wide (area 5,500 sq. yd.). The larger span (away from the main line) houses a covered roadway, 70 ft. wide, and a further siding against the outer wall. This roadway is wide enough to allow the unloading or loading of wagons direct from truck or back of loading dock simultaneously. Each siding can hold 25 to 30 Continental-type long-wheelbase freight wagons according to class.

Warehouse

An additional storey has been constructed over two-thirds of the shed at the London end, half of which will be used as a warehouse and half to allow for future development. The warehouse space contains a portion 1,925 sq. yd. in area partitioned off by means of fixed steel wire mesh on angle framing fixed between circular steel columns, to serve as a customs bond. There are four lifts to carry produce from the loading dock to the warehouse. Offices and staff amenities are provided on the first floor for the agent and his staff and for the Customs officers. At the London end of the shed, adjacent to a small external loading dock, there are offices for clerks, police and checkers.

On the opposite side of the approach road, but only a few yards away from the shed, there is a single-storey block containing 12 lock-up offices for individual traders and agents, further messing and lavatory accommodation, the boiler room, and rest room for railway and public lorry drivers. The external loading dock on the end of the depot will be used for loading produce from the warehouse direct into lorries, without them entering the shed. About 150 railway staff and 10 Customs staff will work at the depot, which at first is expected to handle about 200,000 tons of fruit, vegetables and other perishable import traffic a year.

Layout

Arrival and departure lines connecting with the main and local lines feed into six holding sidings and then into either of the shed sidings. To make shunting easier, these six holding or reception sidings and an engine release line are equipped with an overhead contact wire electric traction supply system (660 volts direct current) for use by Southern Region electric locomotives, which normally run on the third rail system, but are equipped with pantographs for depot and yard operations. There is also a brake van kip, a short shunting engine spur, and a small holding siding behind the shed for 10 wagons "to wait order."

The site was formerly allotment gardens, the ground undulating, and rising from St. Mildreds Road towards Grove Park. This necessitated considerable earthworks. The excavated material, mainly clay, was unsuitable for filling, and was removed from site and replaced with imported filling, consisting chiefly of brick rubble, sand and chalk. Adjoining Further Green Road, a reinforced concrete gravity wall was erected to contain the filling at the London end. Its length is 551 ft. 6 in. and its total height above foundations is 22 ft.

Shed

At the country end of the shed, limited space and the close presence of residential property made it necessary to cut back the slope and support it by a Larssen steel sheet pile wall 434 ft. long, using piles varying in length from 45 to 17 ft., with a maximum penetration of 27 ft. In all 121,200 cu. yd. of excavation was disposed of and 98,000 cu. yd. of filling was used; some 22,200 cu. yd. of ashes were also used for ballasting under sidings and permanent way connections. The shed is 1,002 ft. 9½ in. long by 157 ft. 2 in. wide overall, composed of two unequal bays of 64 ft. 7 in. and 85 ft. clear distance between columns. The smaller bay contains the siding and unloading dock, the surface of which is concrete and 3 ft 6 in. above rail level. Minimum height above dock to beam is 14 ft. 5 in. The larger bay has a minimum head room of 16 feet over the concrete roadway, which is 4 ft. 3 in. below the level of the dock floor. A fall on the roadway surface of 1 in 68 allows for washing down.

All floors are designed for a loading of 2 cwt. per sq. ft., plus additional point loads which may be imposed by fork-lift trucks. Design of foundations was based on the safe bearing pressures of the undisturbed virgin soil which varied from 0.48 tons per sq. ft. at 5 feet below the original surface to 1.75 tons per sq. ft. at a depth of 10 feet. Bases of the outer reinforced concrete columns vary between 14 ft. by 9 ft. and 16 ft. by 15 ft. by 3 ft. deep resting on the virgin soil. Bases for the central columns, which have heavier loading, are 22 ft. by 10 ft. by 3 ft. deep, resting on a continuous reinforced concrete strip footing 22 ft. wide and 3 ft. 6 in. deep. Above the reinforced concrete, piers 3 ft. 6 in. and 4 ft. square were carried up to floor level, above which were the columns.

Fork-lift truck handling pallets of tomatoes from Spain on to road vehicles in Hither Green depot; road approach to premises; below, palletised grapes from Spain being unloaded from Transfesa wagons which make through journeys from the 5 ft. 6 in. gauge RENFE via axle-changing stations on the Franco-Spanish frontier; and, right, an electric locomotive arriving with wagons from the Dunkerque—Dover ferry

Floor and Walls

The heavy warehouse floor, with a single line of columns placed along the south-west edge of the loading dock, is supported by heavy two-span continuous reinforced-concrete beams, which, with their column supports, are spaced throughout at 22 ft. 3 in. centres. Walls between columns are of 11 in. cavity brickwork, a 5-in. gap being left in the outer skin at every other column to allow for movement between the columns and the brickwork. On the upper floor, single span ridge-type roof trusses of conventional design are carried on concrete eaves beams, except at the centre, where a steel valley beam 16 in. by 17 in. carries the trusses on a line of reinforced concrete columns.

Roof covering throughout is of double asbestos-cement sheeting with an intervening 1-in. layer of insulating material. Natural roof lighting is provided by six rows of continuous patent glazing with

(*Continued on page* 18)

NEWS FROM ALL QUARTERS

Automatic Subway Train

There was a demonstration last week of the fully-automatic subway train intended for the Times Square—Grand Central shuttle service in New York.

Growers' Claims Against Railways

At a meeting of the Vale of Evesham growers' branch of the N.F.U. a speaker blamed delays on the railways on lack of government policy on railwaymen's wages. The railways were in the position of a man "trying to spray a 100-acre field with a bicycle pump." Members of the branch reported claims for loss totalling £1,500 since the beginning of the year.

Electrification in Brazil

The Brazilian Federal railway authority (R.F.F.S.A.) has announced that, since its foundation in 1957, it has acquired 222 diesel-electric locomotives and has ordered a further 151 units, which began to arrive from September onwards. Steam traction, which accounted for 50 per cent of the traction power available in 1956, was reduced to 20 per cent in 1959 and within a short time will not exceed 10 per cent of the total. Electric traction remained relatively stable during the period, accounting for 80 units in 1956, 91 in 1958 and 101 units last year. According to R.F.F.S.A., the north-eastern network will be entirely served by diesel power within six to 12 months.

S.A.R. to Build Reserves

The general manager of South African Railways, Mr. D. H. C. du Plessis, has said in Bloemfontein that the railways, "barometer of South Africa's economic welfare," are experiencing an unprecedented recovery from the setback in 1958-59, when the administration was more than £12 million in the red. He said that the railways, after exhausting their £9 million reserve in 1959, ended their financial year on March 31, 1960, with a surplus of £7,736,000. By the end of June this year they had netted another £1,250,000 to bring their reserve fund to just over £9 million. But the matter would not rest there. To avoid a recurrence of the recent heavy economic blow, it had been decided not to relax the railways' stringent saving policy until a reserve of £100 million was safely tucked away.

Darlington Railway Works

Darlington Corporation Development Committee has had an interview with the Board of Trade regarding the future of the North Road railway works, where it has been rumoured large-scale redundancy is expected. The works employs about 3,000 people, and is among Darlington's largest employers of labour. The British Transport Commission has stated that either the North Road Works, Darlington, or the works at Horwich will be closed by 1963. The Faverdale works, Darlington, is to cease building wagons this year, but most of the staff will be retained on wagon repair work. Sir Brian Robertson, chairman of the B.T.C., has told the local M.P. that it could not at present anticipate what its capital expenditure would be in coming years and therefore did not know how much work would be allocated to places such as Darlington.

Bailey Bridge over Railway

Prefabricated Bailey bridge spans were used by North Eastern Region railway engineers when they erected a temporary roadbridge over the four-track main line near Birtley, Co. Durham, last Sunday (October 16). The bridge will replace for a temporary period the girder bridge at Bog Lane between Ouston Colliery and Barley Mow, so that this can be raised and track improvements and strengthening carried out.

Wholesale Market Produce Handling

Coventry Climax Engines, Limited, was one of the exhibitors of fork-lift trucks this week at the Mechanical Handling and Refrigeration Exhibition, held on the site of the new Sheffield wholesale market at Acres Hill, Sheffield. The exhibition was sponsored by the Horticultural Marketing Council in co-operation with the Sheffield City Council for the purpose of encouraging the employment of mechanical aids in wholesale markets.

New Scotswood Bridge—Some Day

Construction of a new low-level bridge across the Tyne at Scotswood, up-river from the city, to replace the present structure was approved in principle by Newcastle City Council on October 5. The expenditure of over £17,000 on repairs to the existing bridge was also approved. It was reported that the Minister of Transport recognised the urgent need to replace the existing bridge but did not think it could be incorporated in a proposed by-pass scheme. The final planning of this scheme must await reports on the effect of the Tyne Tunnel on through traffic. The present bridge, now 130 years old, is said to be "ramshackle and dilapidated."

South Wales Road Congestion Alleged

Newport and Monmouthshire Chamber of Commerce, together with Cardiff, Neath, Briton Ferry and District, Port Talbot and Swansea chambers, have asked the Minister of Transport to take drastic action to clear bottlenecks on the South Wales road from Chepstow in the east to Port Talbot in the west. The five chambers also sent a joint memorandum to the Minister, which stated that the provision of good through roads was the responsibility of the state, and they asked that the improvement of conditions at Chepstow, Newport and Port Talbot should be given the very highest priority. Steps should be taken to remove the bottlenecks until a proper scheme could be carried out.

World Bank to Study Argentine Transport

The World Bank has just announced a technical director of a comprehensive study of transport to be undertaken in Argentina. The study is expected to take about 15 months and will provide the basis for a long-term programme for developing Argentina's transport network. The United Nations Special Fund is assisting this study with a grant of $475,000 to cover part of the foreign exchange costs involved; the Argentine Government is paying the remaining external costs and all the local expenses. A transport planning group is to be established in the Argentine Ministry of Public Works and Services. Its chairman will be the Transport Minister, Ing. Alberto R. Constantini. It will prepare an integrated plan of investment.

COMMERCIAL AVIATION

B.E.A.'s 25-Millionth Passenger

SABENA TO SOUTH AMERICA

IN another record month, B.E.A. passed another landmark in its development on September 27, when it carried its 25-millionth passenger. In a recent message to the staff, Lord Douglas of Kirtleside, chairman of B.E.A., said: "We passed the 20 million mark as recently as June last year so that we have carried five million passengers in 15 months. In contrast it took us more than six years to carry our first 5 million passengers." The record for the largest number of passengers to be carried in one month was broken in July and was broken again in August, when B.E.A. air liners carried well over 500,000 passengers. Passenger-miles in August were in fact 19 per cent up on last year and preliminary figures indicate a similar increase in September.

Lord Douglas also said that the Rolls-Royce Dart turboprop engines which power B.E.A.'s Vickers Viscount 802 air liners have recently achieved the longest overhaul life of any aero engine anywhere in the world. Several Dart 510s have now been flown for 3,000 hours between overhauls and full approval of this figure is expected later this month. Progress with the development of the other types of engine is also encouraging. The Rolls-Royce Avons in the D.H. Comet 4Bs now have an approved life between overhauls of 1,300 hr. and trials are now in progress to raise this to 1,600 hr. The figures—3,000 hr. for the Dart and 1,600 hr. for the Avon—represent the equivalent of an 8-hr. and 4½-hr. working day, 365 days a year. Another Rolls-Royce turbine, the Tyne, has now been fitted in its fully modified form to the Vanguard, which is now engaged on a 250-hr. intensive endurance flying C. of A. programme. B.E.A.'s first Vanguards are expected to be delivered by the end of the year.

Cunard Eagle Inaugural Bermuda Service

At 00.01 hr. on October 15, a Cunard Eagle Airways turboprop Bristol Britannia aircraft left London Airport for Bermuda and Nassau on the inaugural flight of the company's first- and economy-class service between London and Bermuda and Nassau. The new service operates once every fortnight at present, but from January, 1961, will become weekly.

Aer Lingus Transatlantic Traffic Increases

Transatlantic traffic on Aer Lingus Irish International Airlines services during the six months ended September 30 was greater than the total transatlantic traffic carried by the company in the entire financial year ended March 31, 1960. In the six-month period, 24,300 transatlantic passengers were carried compared with 24,100 during the whole of last year. Traffic on the company's European services during the last six months rose to 480,820 from 384,478 in the same period last year.

Channel Air Bridge Success

The table below shows the large increases in Channel Air Bridge traffic between Southend and Calais, Ostend and Rotterdam after fare reductions were introduced a year ago.

Year to Sept. 30	*1959/60*	*1958/59*
Services operated	16,124	10,840
Passengers carried	151,322	86,622
Vehicles carried	26,435	18,846
Freight carried tons	7,140	4,055
Revenue tons-miles	4,662,798	3,084,782

Reduced winter fares are effective from October 16 until the end of June, 1961, and there will be a minimum of 24 services daily between Southend and Calais, Ostend and Rotterdam. A further announcement concerning the company's proposed new long-range vehicle ferry services to Lyons, Strasbourg, Dusseldorf and Bremen some time in 1961 awaits the results of discussion and fresh joint proposals by Channel Air Bridge and Silver City. Meanwhile the new Carvair car ferry conversion of the DC4 is progressing satisfactorily and a firm order has been placed for 10 of these aircraft by Channel Air Bridge.

Swissair Winter Programme

Among the main features of Swissair winter schedules, which take effect on November 1, are Caravelle jet services from London to Basel, Geneva and Zurich, and to all but two destinations served by the airline in the Middle East. Caravelles will fly morning and afternoon services between London and Zurich, with afternoon flights calling at Basel. From mid-December Caravelles will also operate low-fare night tourist services London—Zurich six times weekly and, subject to government approval, London—Geneva twice weekly. The daily morning flights to Geneva will continue to be operated by Convair Metropolitans and afternoon departures from London will be operated from the end of January. A new night tourist service will link Manchester with Zurich direct on Fridays, in addition to the usual day flights via Basel. To the Middle East Swissair will operate a total of 14 flights weekly, nine of them by Caravelles and up to 10 services weekly will be operated between Switzerland and New York, all by Douglas DC8 jets. Westbound up to seven flights weekly will be routed via Shannon and three via Lisbon. Eastbound most services will fly nonstop New York to Geneva or Zurich in just over seven hours; three to four eastbound flights weekly call at Lisbon.

First Sabena Service to Latin America

Result of negotiations between the Mexican and Belgian governments is that Sabena has announced the opening of a service between Brussels and Mexico City. This will come into operation on December 2 next, with connecting flights to and from London. There will be two flights weekly through Montreal, Canada, in Boeing Intercontinental 707s, which will cover the distance between the two capitals—over 6,000 miles—in 13 hr. 10 min. flying time westwards and 11 hr. 40 min. eastwards. Sabena has also announced that it has reached a full pooling agreement, unique in Europe, with the Spanish carrier Aviacion y Commercio, under which the material of the two companies is interchangeable, to the point that the crews of either can operate the aircraft of the other. This form of full co-operation between the two airlines is to be brought into force on the lines linking Brussels with Teneriffe and Las Palmas, Canary Isles. Sabena's Super DC-6 aircraft, linked with a similar aircraft from London, will leave Brussels for Barcelona on Tuesdays and Saturdays and for Madrid on Thursdays. When the aircraft reach Spain, the Spanish crews of A.y.C. will relieve the Belgian crews and fly the same aircraft on to Las Palmas. The Thursday service from Madrid to Las Palmas will include a stop at Teneriffe. The flights from Barcelona will include a stop at Madrid.

MASTER OF THE CARMEN'S COMPANY

Raymond Birch

Mr. R. W. BIRCH, M.I.Mech.E., M.Inst.T.

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On October 19 Mr. Raymond William Birch was installed as Master of the Worshipful Company of Carmen. He has been in the road transport industry for 37 years, having in 1923 joined the board of Birch Bros., Limited (which at that time had a large horse mail van contract with the Postmaster-General); he became chairman of the company in 1949. He was chairman of the passenger section of Associated Road Operators from 1935 to 1937 and later served on the councils of the Commercial Motor Users Association and the Omnibus Owners Association. On the merging of the Omnibus Owners Association and the Public Service Transport Association to form the Public Transport Association, Mr. Birch continued as a member of council of the latter and in 1947 became chairman for two years. In 1941 he joined the British Electric Traction Co., Limited, as an executive officer, and is now chairman of Potteries Motor Traction Co., Limited, Yorkshire Traction Co., Limited, Yorkshire Woollen District Transport Co., Limited, Hebble Motor Services, Limited, County Motors (Lepton), Limited, Stratford-upon-Avon Blue Motors, Limited, A. Timpson and Sons, Limited, and Eddison Plant, Limited, the last mentioned of which runs a large fleet of rollers, excavators, and other contractors' plant. He is also a director of B.E.T. Omnibus Services, Limited, B.E.T. Investments, Limited, Birmingham and District Investment Trust, Limited, Birmingham and Midland Motor Omnibus Co., Limited, National Electric Construction Co., Limited, Southdown Motor Services, Limited, and South Wales Transport Co., Limited. From its formation in 1942 until May, 1947, Mr. Birch was director of the British Omnibus Companies Public Relations Committee, of which he is now chairman. He was a member of the Road Research Board from 1946 to 1952, and has served as a vice-president of the Institute of Transport; he is a member of the Ministry of Transport Committee on Road Safety, a vice-chairman of the Road Operators' Safety Council, chairman of the National Committee on Road Transport Education, and chairman of governors of the North Western Polytechnic. Mr. Birch is one of the three sons of the late William Henry Birch, one-time chairman of the Atlas and Waterloo Omnibus Association, and a great-grandson of William Birch, who in 1832 founded the Birch family business in Westminster. He was educated at University College School and University College, London, and is a member of the Institution of Mechanical Engineers and of the Institute of Transport.

LETTERS TO THE EDITOR

Tramway Abandonments

AMENDED DATES

SIR,—In the August 6 issue of MODERN TRANSPORT there was a list of tramway abandonment dates since 1938. In this March 31, 1939, was quoted as the Brighton date. Just to put the record straight and in case no one else has done so I would point out that at March 31 the full system was in operation. This was the last day of independent operation before the pooling arrangement with the bus companies came into force.

On April 1 two routes were withdrawn ostensibly to facilitate conversion work on overhead wires but the withdrawal involved no diminution of trackage in daily revenue service. New Corporation buses were put on the two routes and I well remember motormen gonging them to get out of the way as they were slower than the trams in hill climbing.

To the best of my recollection the first actual closure was in June on the Ditchling and Beaconsfield Road routes. The Lewes Road route had ceased a little earlier but as the depot was almost at the end of it there was not much track out of use. The Station route was closed in July, but reopened for a short period a week or two later as the trolleybuses seemed to be having difficulty with the holiday crowds. Similar difficulties occurred on other routes because the new vehicles had a maximum capacity of about 64 including standing whereas the trams, though a little smaller, had no official limit on standing either on the lower or upper deck, the only restriction being on travelling on the platforms and stairs. Final abandonment was on August 31, 1939, and the last car was, I believe, No. 64 which had been the first built with air brakes about 1926.—Yours faithfully,

L. R. EVERETT.

P.O. Box 30121,
Nairobi, Kenya.

Abandonment of Oxford Tramways

SIR,—May I be permitted to comment upon the most interesting list of tramway abandonments published on page 24 of your October 1 issue. The Oxford horse tramway system is there stated to have been abandoned "early 1914." In point of fact it seems certain that a skeleton service was maintained until August 7 of that year on which date the Act of Parliament permitting the closure of the tramways received the Royal Assent. This is borne out by contemporary newspaper records which I have examined, it being stated in December that—"a start has been made with lifting the tramway tracks which have lain in the streets, disused, for six months." The substitution of buses was obviously dependent upon the availability and licensing of motor buses, around which great controversy arose because of the "pirate" enterprise of William Morris (now Lord Nuffield) on the one hand and the failure of the tramway company to provide sufficient vehicles to give a full service on the other. As late as March, 1914, the company manager reaffirmed that a full service was about to begin. Statutorily, it would seem that the trams were obliged to run until the August, in any case.—Yours faithfully,

H. V. JINKS.

69 *Divinity Road,*
Oxford.

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FORTHCOMING EVENTS

Until October 29.—International Motor Show. Earls Court.

October 24.—P.W.I. W. Rothwell, "Preservation of Timber." 222 Marylebone Road, N.W.1. 6.30 p.m.
R.C.T.S. (Northampton). H. C. Casserley, "A Trip to Ireland." Liberal Club, Castilian Street, Northampton. 7.30 p.m.

October 25.—R.T.N.A. J. A. Dodds, "Observations on the Design and Construction of the N.S. *Savannah*" (Joint Nuclear Marine Propulsion Panel Paper). 76 Mark Lane, E.C.3. 5.30 p.m.
Inst.T. Leeds G. and S. V. E. Whitaker, "The West Riding Ambulance Service." Leeds City Transport Dept., 1 Swinegate, Leeds 1. 7 p.m.
Inst.T. (West Middx.). Garret Fitzgerald, "Economics of the Peak in Air Travel." Conference Room, Control Tower, London Airport Central. 6.30 p.m.
I.E.E. (Measurement and Control). E. H. Cooke-Yarborough and R. C. M. Barnes, "Rapid Methods of a Weak Radio-Active Sample Exceeds a Predetermined Level." Savoy Place, W.C.2. 5.30 p.m.

October 26.—B.I.R.E. J. S. Shayler, "Radio Aids for automatic landing developed by the Blind Landing Experimental Unit." School of Management Studies, Unity Street, Bristol. 7 p.m.
L.R.T.L. V. E. Burrows, "The Lisbon Tramways." 153 Drummond Street, N.W.1. 7 p.m.
I.Nav. Annual general meeting. Presidential address by Wing Commander E. W. Anderson, "The Philosophy of Navigation." 1 Kensington Gore, S.W.7. 3 p.m.
I.Mech.E. Professor Owen A. Saunders, "The Scientist's Contribution to Mechanical Engineering." 1 Birdcage Walk, S.W.1. 6 p.m.
I.R.T.E. P. H. Wyke-Smith, "Taking Stock on Maintenance." Commercial Hotel, Accrington. 7.30 p.m.
I.E.E. (Electronics and Communications). Chairman's address by T. B. D. Terroni, "Channelling—a Sketch." Savoy Place, W.C.2. 5.30 p.m.
Inst.Traf.A. (Devon and Cornwall). A. W. Kirkwood, "Passenger Transport." S.W. Gas Board Theatre, Plymouth. 7.15 p.m.
P.R.D.G. J. B. Manson, "Work of the District Engineer." Technical College, Peterborough. 6.45 p.m.

October 27.—Inst.C.E. (Traffic Engineering Study Group) Informal discussion "Dartford Tunnel origin and destination survey." Great George Street, S.W.1. 5.30 p.m.
I.E.E. A. Hewish, "The Principles and Operation of a Large Radio Telescope." Savoy Place, W.C.2. 5.30 p.m.

October 28.—I.R.S.E. Annual dinner and dance. Connaught Rooms, W.C.2. 6 p.m. for 6.45 p.m.

KEY TO CODE

A.D.A.—Aluminium Development Association; A.F.—Aviation Forum; B.I.R.E.—British Institution of Radio Engineers; B.L.S.—Branch Line Society; D.E.U.A.—Diesel Engineers and Users Association; E.R.S.—Electric Railway Society; H.C.V.C.—Historic Commercial Vehicle Club; H.M.R.S.—Historical Model Railway Society; Inst.C.E.—Institution of Civil Engineers; I.E.E.—Institution of Electrical Engineers; I.N.A.—Institution of Naval Architects; I.R.S.E.—Institution of Railway Signal Engineers; I.R.T.E.—Institute of Road Transport Engineers; I.T.A.—Industrial Transport Association; I.Loco.E.—Institution of Locomotive Engineers; I.Mar.E.—Institute of Marine Engineers; I.Mech.E.—Institution of Mechanical Engineers; I.Nav.—Institute of Navigation; Inst.H.E.—Institution of Highway Engineers; Inst.P.—Institute of Petroleum; Inst.T.—Institute of Transport; Inst.Traf.A.—Institute of Traffic Administration.
L.M.R.L.D.S.—London Midland Region Lecture and Debating Society; L.R.T.L.—Light Railway Transport League; N.T.M.R.C.—Norbury Transport and Model Railway Club; O.S.—Omnibus Society; P.R.D.G.—Peterborough Railway Discussion Group; P.V.O.A.—Passenger Vehicle Operators Association; P.W.I.—Permanent Way Institution; R.Ae.S.—Royal Aeronautical Society; R.C.H.S.—Railway and Canal Historical Society; R.C.T.S.—Railway Correspondence and Travel Society; R.H.A.—Road Haulage Association; R.S.A.—Royal Society of Arts; Rly.C.—Railway Club; Rly.E.C.—Railway Enthusiasts Club; Rly.S.A.—Railway Students Association; S.C.T.S.—Southern Counties Touring Society; S.E.—Society of Engineers; S.L.S.—Stephenson Locomotive Society; S.R.L.D.S.—Southern Region Lecture and Debating Society; S. Wales and Mon. R.D.L.D.S.—South Wales and Mon. Railway and Docks Lecture and Debating Society; T.R.T.A.—Traders Road Transport Association; V.P.V.S.—Vintage Passenger Vehicle Society; W.R.L.L.D.S.—Western Region London Lecture and Debating Society; W.W.R.T.S.—West Warwickshire Railway and Travel Society.

BOOK NOTICES

Trade and Technical

THE COMMERCIAL MOTOR TABLES OF OPERATING COSTS, 1960 edition. (London: Temple Press, Limited, Bowling Green Lane, E.C.1. Price 3s. 6d.) Apart from a regrouping of goods vehicles by carrying capacity, these operating cost tables retain their customary format and content. The change referred to makes possible a side-by-side cost comparison between petrol and diesel-engined vehicles of a given carrying capacity. It should be noted that these tables cover goods vehicles, public service vehicles and private cars used for business purposes. They are invaluable to fleet operators and transport buyers alike.

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GARAGE AND SERVICE STATION HANDBOOK. (London: George Newnes, Limited, Tower House, Southampton Street, Strand, W.C.2. 42s. net.) This new book is the work of seven authors, each of whom is an acknowledged authority in his field, with Mr. John Queenborough, editor of *The Garage and Motor Agent*, acting as advisory editor. It forms a comprehensive reference work covering both practical and legal requirements in great detail, of value equally to those already established in the garage and service station industry and to new entrants to the industry.

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THE MOTOR INDUSTRY OF GREAT BRITAIN, 1960. (London: The Society of Motor Manufacturers and Traders, Forbes House, Halkin Street, S.W.1. One copy free to members on request, additional copies to members 42s., otherwise 55s., post free in United Kingdom.) This volume, the 14th in the postwar series, follows the layout and pattern of earlier issues, thus providing continuity of statistics from which the progress of the motor industry can be followed. New material includes greater detail in the registration tables and additional countries in the vehicles-in-use tables, adding to the value of the book as a comprehensive source of reference.

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BINGHAM'S MOTOR CLAIMS CASES, Fourth edition. (London: Butterworth and Co. (Publishers), Limited, 88 Kingsway, W.C.2. Price 62s. 6d.) The value of this handsome tome to all engaged in the processes of the law is hardly likely to be disputed after a span of 14 years. One imagines that readers of this review will be chiefly concerned to know whether it is likely to be of value in an office or on a study bookshelf. The answer must be that most of us who have to do with transport, even if it be only the private car, like to know whether we have any hope of succeeding in, or defence against, a claim and Bingham will probably provide the answer where other reference books are silent. It is a most comprehensive digest of annotated claims cases in every conceivable field, with numerous analogies from sources other than transport and much relevant statutory and tabular matter is appended. A few examples may indicate the scale on which guidance is given. Ten cases are cited in which a vehicle insurance policy was found to be effective, five in which it was not; the verdicts of courts in the matter of damages are treated to the extent of no fewer than 250 pages, with specimen awards and a particularly gruesome table of the disablement factor caused by specified injuries. In the case of *White v. Broadbent and B.R.S.*, which concerned the giving of the overtaking signal, a footnote reminds one that this signal has been omitted from the 1959 edition of the Highway Code. There is a useful chapter on court practice, again drawing on decided cases. The book is not without attractions to the browser; one fancies, for example, that the president of the Transport Tribunal would extract some wry amusement from the observation (in a railway case) that "the Tribunal . . . was after considerable difficulty located at Wellington House, Strand." Since then, of course, it has withdrawn itself from that distressingly vulgar thoroughfare and from an even more inaccessible third-floor eyrie contemplates instead the Embankment Gardens, appreciative, we are assured, of the lunchtime band concerts when they relieve the languors of a morning appeal sitting.

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PUBLICATIONS RECEIVED

TERYLENE INDUSTRIAL BUYERS' GUIDE. A revised Part 2 of this publication by Imperial Chemical Industries, Limited, Imperial Chemical House, Millbank, London, S.W.1, covering coated and proofed canvas covers and associated yarns and materials.

ALUMINIUM COURIER, JUNE, 1960, reproduces papers presented to the symposium, *Aluminium in Railway Rolling Stock*, held in London in May. The book is published by Aluminium Development Association, 33 Grosvenor Street, London, W.1, joint organiser with the Institution of Locomotive Engineers of the symposium.

SOLUS-SCHALL INSPECTION SERVICE. An informative booklet published by Solus-Schall, Limited, County Building, Honeypot Lane, Stanmore, Middlesex, in which site methods of the non-destructive testing services provided by the company are reviewed. Background information on the various methods employed is given.

B.M.C. WORLD. The first issue of a new British Motor Corporation internal house journal. In newspaper format, it is probably unique in that it is produced in five editions initially for different groups of factories; the four outer pages of each edition are devoted to those particular factory groups, with eight internal pages common to all.

METALEXICON. A new publication by Metalastik, Limited, Evington Valley Road, Leicester, which provides a quick guide to the wide range of products manufactured by the company. A summary of principal Metalastik developments in the application to rubber to problems of vibration, shode, misalignment, unlubricated movements and suspension is followed by illustrated and detailed descriptions.

NOTES FOR ACHESON TYPES. A successor to the popular *Running-In of Engines*, just published by Acheson Colloids, Limited, P.O. Box 12, Prince Rock, Plymouth, outlining the advantages of using colloidal graphite in straightforward non-technical language and answering common questions about filters, oil compatibility, running-in periods and other favourite topics. The points made in the text are illustrated by some unusual Maurice Rickards photographs.

SIMMONDS SELF-LOCKING NUTS. A new 48-page technical manual now available from Simmonds Aerocessories, Limited, Treforest, Glamorgan (a Firth Cleveland company), which lists the comprehensive range of Nyloc and Pinnacle self-locking nuts. Illustrated introductory matter deals with the Simmonds self-locking principle and the general data sections contain all the dimensional and technical data likely to be required by designers and engineers.

STREET LIGHTING—THE CHANGING SCENE. "Police authorities confirm that good street lighting reduces accidents and acts as a deterrent against crime." So runs the introductory paragraph to this 12-page illustrated brochure published by the Electrical Development Association, 2 Savoy Hill, London, W.C.2. The publication reviews briefly those aspects of street lighting which concern local authorities, particularly committees charged with the responsibility for making decisions regarding street lighting, and reproduces evidence of various authorities of the value of good street lighting, with supporting illustrations.

EXPANDING ALUMINIUM PRODUCTION

£10 Million Scheme at Rogerstone

ALUMINIUM, although widely distributed and the third most abundant element in the earth's crust, does not occur in nature in its metallic form. The commercial ores from which it is extracted are grouped under the generic term "bauxite," and the reduction of bauxite to metal involves two main operations: preparation of pure alumina from the mineral-bearing ore, and the reduction of alumina to metal by electrolysis. With a high grade ore 4 lb. of bauxite will produce 1 lb. of aluminium, and the process will use 10 units of electricity. Therefore in ideal circumstances the bauxite deposits would be located in close proximity to cheap and abundant sources of hydro-electric power, as in the Rhone Valley in France.

In fact these ideal conditions seldom exist together, and the Aluminium Company of Canada, Limited (Alcan) is obliged to mine bauxite in Jamaica where it is processed into alumina and shipped to Kitimat, British Columbia, where it is reduced to metallic aluminium. The power for the Kitimat plant comes from Kemano, 50 miles away, where the generators at present installed have a capacity of more than one million horse power and the fall of the water through the tunnel penstocks is 16 times the height of Niagara. At the end of 1958 the Kitimat smelters were producing aluminium ingot at the rate of 180,000 tons a year, with a further 80,000 tons capacity partially completed. The plant is designed for an ultimate output of 550,000 tons, which represents the ultimate power available from the hydro-electric resources in the area.

Anglo-Canadian Enterprise

About one-sixth of the total capital outlay for this vast project has been financed by the British Government, and in return Alcan has given Britain first call on large tonnages of aluminium ingot and pig until 1971. The advantage of this cheap production, made possible by the exploitation of great quantities of economic water power, is already proving itself to British industry, and it is significant that of the 260,000 tons of primary aluminium consumed by this country in 1958, some 164,000 tons were imported from Canada.

Statistics for the United Kingdom, like those for world production, show a rapid expansion of production during the war years, followed by a decline on the cessation of hostilities and a renewed upwards movement as postwar construction gathered way. The present level of output greatly exceeds the prewar figure, and the equipment now being installed will help further to expand the industry by catering for the more varied demands for rolled aluminium products that have arisen in recent years.

Rogerstone

The mill at Rogerstone, near Newport, in Monmouthshire, was opened in September, 1950, by the Northern Aluminium Co., Limited, now Alcan Industries, Limited, for rolling continuous strip; it was the first of its kind in Europe. At the time, provision was made for further expansion on a considerable scale, and these plans were implemented in 1958 when a four-year programme costing £10 million was devised to cope with the growing needs of established markets, and also to provide for the more efficient fabrication of the stronger magnesium bearing alloys. This scheme, which will increase the output at Rogerstone by 50 per cent to 75,000 tons per annum, reached its halfway mark on October 8 with the entry into production of some of the new equipment, including the most important single item—a 144-in. hot mill. This new rolling mill has been placed at the head of the original third of a mile long hot line, and will enable plate to be rolled in widths of over 10 ft. and up to 50 ft. in length.

In recent years the usefulness of this material has been greatly enhanced by the development of simple and reliable welding processes, and has lately found an increasing application in the shipbuilding industry, particularly for the superstructure of passenger liners; the new ship *Oriana* and *Canberra* together embody over 1,000 tons of Noral plate in a 4½ per cent magnesium Noral alloy. With the larger sizes that are now available considerably less joining will be necessary and the cost to users will, therefore, be cheaper. The ability of aluminium plate to withstand rough treatment has also led to its use for dumper and tipper vehicles as well as for railway mineral wagons and coal chutes. A feature of this plate is that it can be supplied with edges sawn to very close limits, thus saving the user time and money by eliminating edge trimming.

Aircraft Plate

A more specialised product is plate used for aircraft construction. This is a high-strength alloy and is generally supplied in a thickness of several inches for machining into a structural component having stiffening members integral with the skin. This plate must have good mechanical properties in all directions and must be free from residual stresses that would cause distortion during machining. Noral plate is currently being used for the Vickers Vanguard, VC10, and the Blackburn Buccaneer.

In addition to the installation or alteration of equipment that is immediately productive, provision for further development is also included in the present programme. It includes foundations for future floor space and the reclamation of seven acres of land by a diversion of the River Ebbw. A new re-melt department with facilities for casting ingots of up to eight tons will be in production by 1961 and will be sited on the reclaimed land. This will in fact be designed as the initial stage in a completely new re-melt department, which will serve the mill to its ultimate capacity of 175,000 tons a year.

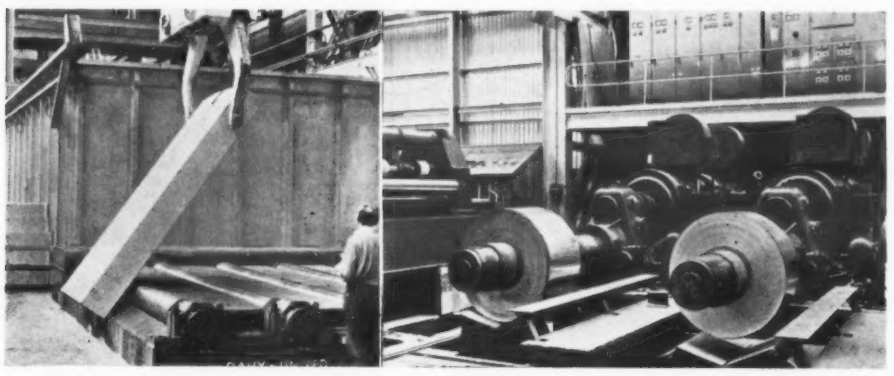
Alterations to Layout

The additional rolling capacity gained by the installation of the 144-in. hot mill and the third stand in the finishing mill has led to alterations in the original layout of the hot line, the main change being the proposed removal of the 84-in. intermediate roughing mill. The existing 96-in. roughing mill which formerly stood at the head of the line will now be required to operate as an intermediate mill. When it is used as a breaking down mill, the absence of a second roughing mill in the sequence will be compensated for in part by the additional hot finishing stand, and also by making extra passes in the initial breaking down. When acting as an intermediate roughing mill it will be handling far larger slabs than before, and to assist in handling these the side guides of the replaced 84-in. mill will be fitted outside the present guides.

The edge trimmer previously fitted before the hot finishing stand will be moved and erected in the position on the line vacated by the 84-in. mill. It will then be able to edge-trim slabs up to 200 ft. long without having to be synchronised with a mill and without holding up the rolling programme. The third stand added to the hot finishing mill is identical with the two existing stands, being a 4-high non-reversing mill with rolls 88 in. wide. Slab reaching the finishing stand will be thicker and slightly cooler than previously, and this has meant fitting a 4,000 h.p. d.c. motor in place of the 3,000 h.p. motor previously fitted to the original first stand, now the centre stand, which has also been re-motored at 4,000 h.p.

Coiling

On the original line the sheet was up-coiled at the end of a long run-out table. Recent developments have now made it possible to coil the sheet immediately after emerging from the hot finishing mill, and a new down coiler has now been installed a short distance from the last stand. Because of their durability and lightness, aluminium alloys are used to particular advantage by the transport industry. Despite the somewhat higher initial expenditure that may be involved when compared with steel, the saving in weight and maintenance indicates that in the long term, the use of aluminium results in important economies as was brought out by the symposium on aluminium held earlier this year jointly by the Institution of Locomotive Engineers and the Aluminium Development Association.



An ingot, having been extracted from the pre-heat furnace (in background), is placed on the first rollers of the 144-in. mill run-in tables; right, the completed coil having passed through the 72-in. slitting line

NEWS SUMMARY

IMPORTANT changes in B.E.A. fares policy on internal routes were announced on Wednesday. They include reductions by up to 50 per cent in the case of tourist fares at off-peak times between London, Manchester, Glasgow, Edinburgh and Belfast. Fares to Jersey or Guernsey will vary not only with the season but with the day of the week. In future tourist fares will be calculated on a single basis, the return fare being double the single fare. There will, moreover, be between 30 and 100 per cent more seats available on domestic services this winter compared with last. To Glasgow the off-peak tourist return fare this winter, £11 in mid-week, compares with a first-class rail return fare of £10 16s. The air fare is substantially cheaper at weekends.

Mr. Raymond W. Birch was installed as the Worshipful Company of Carmen on October 19 after the traditional hiring of carts ceremony in Dowgate Hill; the installation service was at St. Stephen's, Walbrook. The Senior Warden is Alderman Sir Frederick Wells, Bart., and the Junior Warden Mr. Frederick Cumber. A portrait and biography of Mr. Birch appear on page 11.

Public demonstrations of the Roadrailer equipment will be held at Marylebone goods depot, London, in the week commencing October 24, at Birmingham from November 14, at Cardiff from November 21 and at Manchester from November 28. Exhibitions in Glasgow, Leeds, Sheffield and Southampton will follow. A second tour will be arranged early in 1961. The Roadrailer, developed by British Railways and the Pressed Steel Company, can be owned by traders or road transport operators for the performance of long trunk hauls by rail at up to 75 m.p.h., with collection and delivery facilities on the road as an ordinary articulated unit.

ABANDONMENT OF TRAMWAYS

Complete Systems Replaced by Buses and Trolleybuses (Cont.)

WE conclude below the list of complete tramway abandonments in the British Isles up to the end of 1937, previous portions of which appeared in our issues of October 1 and 15. It ends with dates for the respective components of the London system. Abandonments since 1938 appeared in a list in our issue of August 6.

Date	*Undertaking*	*Replaced by*
June 9, 1934	Middlesbrough Corporation.	Motor Buses.
June 9, 1934	Guernsey Railway Co., Limited.	Motor Buses.
June 29, 1934	Derby Corporation	Trolleybuses.
October 31, 1934	Yorkshire (Woollen District) Tramways	Motor Buses.
October 31, 1934	Batley Corporation.	Motor Buses.
October 31, 1934	Dewsbury Corporation	Motor Buses.
December 15, 1934	Northampton Corporation.	Motor Buses.
December 31, 1934	Southport Corporation.	Motor Buses.
January 22, 1935	Morley Corporation. (Leased to Leeds.)	Leeds Corporation motor buses.
February 2, 1935	Portsdown and Horndean Light Railway.	Southdown motor buses.
March 9, 1935	Swinton and Pendlebury Corporation.	Motor Buses.
March 31, 1935	Aberdare Corporation. (Trolleybuses, 1914-1925.)	Motor Buses.
May 7, 1935	Brierfield U.D.C.	Motor Buses.
May 7, 1935	Burnley, Colne and Nelson Joint Committee.	Motor Buses.
May 7, 1935	Padiham U.D.C.	Motor Buses.
May 7, 1935	Reedley Hallows Parish Council.	Motor Buses.
June 6, 1935	Poole Corporation (operated by Bournemouth Corporation.)	Hants and Dorset buses.
June 8, 1935	Doncaster Corporation.	Trolleybuses.
June 12, 1935	Middleton Corporation.	Manchester Corporation motor buses.
August 28, 1935	Warrington Corporation.	Motor Buses.
November 16, 1935	York Corporation.	Motor Buses.
December 10, 1935	Norwich Electric Tramways Company.	Motor Buses.
December 15, 1935	Preston Corporation.	Motor Buses.
March 31, 1936	St. Helens Corporation.	Trolleybuses.
April 8, 1936	Bournemouth Corporation.	Trolleybuses.
July 21, 1936	Falkirk and District Traction Company.	W. Alexander and Sons, Limited, buses.
September 5, 1936	Nottingham Corporation.	Motor buses and trolleybuses.
September 30, 1936	Rothesay Tramways Co., Limited.	Motor Buses.
November 8, 1936	Whitefield U.D.C.	Salford Corporation motor buses.
November 10, 1936	Portsmouth Corporation.	Trolleybuses.
December 31, 1936	Dover Corporation.	East Kent Road Car buses.
March 24, 1937	Lytham St. Annes Corporation.	Motor Buses.
March 24, 1937	Isle of Thanet Electric Supply Co., Limited.	East Kent Road Car buses.
March 31, 1937	Grimsby Corporation.	Trolleybuses.
April 17, 1937	Weston-super-Mare and District Electric Supply Company.	Bristol Tramways and Carriage motor buses.
June 29, 1937	Swansea Corporation and Swansea Improvements and Tramways Company.	South Wales Transport Co., Limited, buses.
July 5, 1937	Dunfermline and District Traction Co., Limited.	W. Alexander and Sons, Limited, buses.
July 17, 1937	Birkenhead Corporation.	Motor Buses.
July 17, 1937	Cleethorpes U.D.C.	Trolleybuses.
September 5, 1937	Newport (Mon.) Corporation.	Motor Buses.

LONDON AREA ABANDONMENTS

November 9, 1935	Erith Corporation.	Trolleybuses.
November 24, 1935	Bexley Corporation.	Trolleybuses.
November 24, 1935	Dartford Corporation.	Trolleybuses and motor buses
September 12, 1937	South Metropolitan Tramway and Lighting Co., Limited.	Trolleybuses.
March 5-6, 1938	Middlesex County Council.	Trolleybuses.
October 15-16 1938	Hertfordshire County Council.	Trolleybuses.
March 4-5, 1939	Metropolitan Electric Tramways, Limited.	Trolleybuses.
June 10-11, 1939	Leyton Corporation.	Trolleybuses.
June 10-11, 1939	Walthamstow Corporation.	Trolleybuses.
November 4, 1939	Ilford Corporation.	Trolleybuses.
June 8-9, 1940	Barking Corporation.	Trolleybuses.
June 8-9, 1940	East Ham Corporation.	Trolleybuses and motor buses.
June 8-9, 1940	West Ham Corporation.	Trolleybuses.
December 30-31, 1950	London United Tramways, Limited.	Trolleybuses and motor buses.
April 7-8, 1951	Croydon Corporation.	Motor Buses.
July 5-6, 1952	London County Council.	Trolleybuses and motor buses.

All the London abandonments above were carried out under the auspices of the London Passenger Transport Board or after 1948, the London Transport Executive.

The previously published list (August 6 issue) omitted to refer to the former Great Northern Railway of Ireland tramway. The particulars are given below:

May 31, 1959	Coras Iompair Eireann (formerly Great Northern Railway Board) Hill of Howth Tramway	Motor buses

It is regretted that the date of termination of the Gateshead system was inadvertently shown as February 4, 1951; it should have read August 4, 1951. The last day at Brighton was August 31, 1939, and not as stated.

TRAMWAY MUSEUM PIECES

Separate Trucks

THE items listed below represent an addition to the tramway equipment preserved for posterity as shown in our August 6 issue:

(e) Tramcar Trucks preserved separately

Eades Patent Reversible (ex Manchester M98)	B.T.C.	Clapham
Belfast horse truck	Belfast Transport Museum	
South Staffs truck	1892 Science Museum	Knockholt Store
Peckham Cantilever (ex Leeds 80)	1899 T.M.S.	Crich
Brill 22E bogies (ex Howth 6)	1901 T.M.S.	Crich
Brill 21EM (ex Gateshead 45)	1911 T.M.S.	Crich
Burnley bogie (one)	1923 Museum of Science and Industry, Newhall, Street, Birmingham	
HR/2 EMB bogies (one of each type)	1930 B.T.C.	Clapham
	1931	

EXPRESS DIESEL MULTIPLE-UNIT TRAINS

For Hull–Liverpool Intercity Services

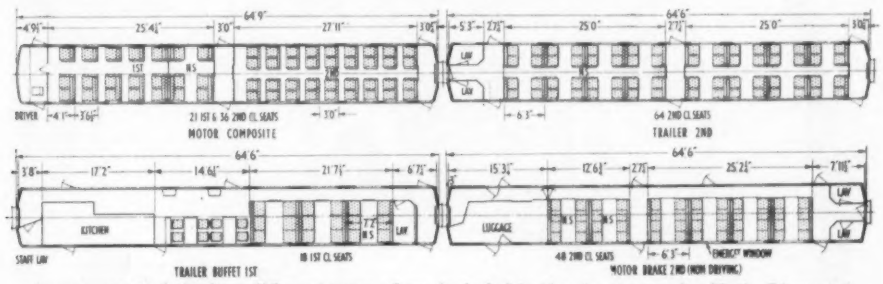
INTERCITY diesel cars are now being built at Swindon for main-line service between Hull and Liverpool, operated between the North Eastern and London Midland Regions, and some vehicles have already been delivered. There are to be 34 motor cars and 17 trailers; these figures also cater for spare cars. The cars will normally be formed in trains of six cars, each six-car unit consisting of four powered cars with two intermediate trailers marshalled as follows: Leading motor brake composite; motor brake second; trailer first buffet; trailer open second; motor brake second; and leading motor brake composite. These trains incorporate 230-h.p. underfloor power units.

The powered cars are of two types—driving motor composites and motor brake seconds. The former have open saloons with seats for 21 first-class passengers and 36 second-class passengers per car. These cars are designed as leading vehicles, the leading end having no gangway connection and the driver's cab extending the full width of the car. The motor brake seconds each have accommodation for 48 passengers in six compartments; these vehicles have two lavatories and a combined guard's compartment and luggage van.

Trailer cars are of two types: trailer first buffet and trailer open second. The trailer first buffet has compartment accommodation for 18 first-class passengers. The buffet portion includes grill and bar; there is also table seating for eight passengers and standing space. Meals can be served into the three first-class compartments. The trailer open second has accommodation for 64 passengers, the vehicle having two lavatories. The six-car train provides seating accommodation for a total of 60 first-class passengers and 232 second-class passengers.

Construction

All the cars, which are 64 ft. 6 in. long and 9 ft. wide at the waist, are fitted with Buck-eye automatic couplers and B.R.-type gangways. They have been designed to resist an end compression load of 200 tons in the same way as the standard locomotive-drawn corridor stock. Unlike the existing standard stock, however, these cars have been designed on the stressed body principle; the underframe, bodysides and roof combine to form a welded structure which resists all bending, compression and draught stresses. This form of construction is particularly useful for diesel cars, since the underframe is completely free from conventional trussing and provides the maximum space below the floor of the car for the suspension of the engines and other equipment with accessibility for maintenance.



Arrangement of the four different types of car included in the six-car sets for Hull—Liverpool services

The coaches are of all-welded construction (with the exception of the driving compartment leading ends) the underframe being fabricated from rolled steel sections on to which is welded a corrugated steel floor of special section. This considerably increases the strength of the vehicle in its resistance to end shocks. The leading end bodywork of the driver's cab is formed of a single glass fibre moulding and is in a modern styling with swept back roofline and wrap-round windscreen. The bodysides are of pressed steel framing members with outside panelling of 16 b.g. steel and are jig-built in sub-assemblies as is also the roof. The lower section of the roof panelling is formed of 8 b.g. plate which, when all the sub-assemblies are welded together into a complete vehicle, forms a continuous structural member extending the full length of the car. The whole interior face of the bodysides, ends and roof is insulated with sprayed asbestos, whilst the corrugated steel floor has the corrugations on the top completely filled with it. The floor surface is then covered with insulating hardboard. Windows in the first-class accommodation and principal windows in the trailer buffet are double glazed. Beclawat sliding shutter ventilators are incorporated in side windows throughout the remaining cars. The glass windows are secured by rubber mouldings and so designed to retain a flush exterior bodyside, the rubber mouldings projecting only sufficiently to protect the edges of the steel body panelling around the window. Lightalloy bodyside doors are of cast aluminium and incorporate the balanced drop window.

Bogies

The bogies, which have a wheelbase of 8 ft. 6 in., are of riveted construction, using rolled steel sections and fabricated sub-assemblies. Rolled steel disc wheels, 36 in. in diameter, are fitted and Timken roller bearing axleboxes provided with manganese steel liners. During the construction of the bogies special attention has been given to the alignment of the hornguides, which are also fitted with renewable manganese liners. After the bogie side plates and crossmembers have been assembled, the complete bogie frame is mounted in a jig and the four horn gaps are machined.

This ensures that the foundations for the manganese liners are perfectly square one with the other and that the liners can be quickly renewed when necessary without the use of shims. The side plates are carried on laminated steel springs with rubber auxiliary bearing springs whilst the bolster is mounted on nests of helical springs carried on suspension bolts hung from the bogie frame on rocker washers. The secondary springing has been modified to suit the 230-h.p. equipment and lateral movement of the bolster is damped by a large Woodhead-Monroe hydraulic shock absorber. To reduce the noise which may be transmitted from the track to the coach body, the centre and side bearings are both mounted on rubber.

Modern decorative schemes, light in colour, have been adopted for the various vehicles. First-class open saloons are panelled in plastics, the walls in Formica tapestry dove grey which contrasts with the partitions of veneered walnut panels. The ceiling is in Formica ivory soft glow. The mouldings round the doors are in polished walnut. The window moulds are anodised aluminium and windows are furnished with curtains of a modern grey fabric. Luggage racks run the complete length of the saloon on either side and are of anodised aluminium. The seats, which are of a new profile, are built on a G. D. Peters tubular frame. Seat fillings of Dunlopillo are upholstered in cut moquette with blue-black seat cushions and blue seat backs. The floor is covered with a charcoal linoleum and carpet runners in mist blue and black.

The finish of the first-class trailer cars is generally similar to the British Railways standard first-class coaches; the compartments and corridors being finished throughout in polished veneered timber, sapele mahogany having been selected for the compartments and Formica tapestry dove grey for the corridors and vestibules. The luggage racks and other metal fittings are in anodised aluminium. The seats are upholstered in a blue and black moquette. Similar artistic arrangements are adopted in other vehicles. Fluorescent lighting is installed in the saloons of either class.

Brakes

Automatic vacuum brakes incorporating two 21-in. vacuum brake cylinders and d.a. valves are fitted to all vehicles. The brake cylinders, which are mounted in the centre bay of the underframe, apply the brake with a clasp action to each wheel of the bogies. The brakework throughout is bushed with Oilite bearings and is fully equalising. The Gresham and Craven two-pipe system, with 15 cu. ft. reservoirs on each vehicle, enables the brakes to be released almost instantaneously irrespective of the exhauster speed. The passenger communication and deadman's control on the throttle both incorporate Gresham emergency valves which ensure full application of the brakes.

Heating of the cars is provided by two Smith's combustion air heaters per car mounted under the floor and from which warmed air is conveyed through ducts to the interior of the vehicles. On compartment vehicles, warm air discharges through apertures under each seat and passenger-operated temperature controls are provided on each side of the compartment. When heaters are isolated, the surplus warm air not required for heating the compartment is discharged through grilles into the corridor. In open saloons, again warm air from the heaters is passed through ducts and discharged through apertures below the seats; temperature control, however, is fully automatic, the operation of the heaters being by wall thermostat mounted in the saloon. In warm weather, all the heaters may be switched off and filtered air, at ambient temperature, circulated throughout the car.

Power Equipment

All the power plant has been supplied by British United Traction. Two engines with transmission and auxiliary equipment are mounted below the floor on each power car. The engines are of the Leyland-Albion six-cylinder horizontal type with a maximum output of 230 b.h.p. at 1,900 r.p.m. and are fitted with 22-in. fluid flywheels. A short cardan shaft and freewheel connects the engine to a four-speed Wilson SE4 gearbox; this carries pulleys at the input end for the belts driving the exhausters and electric generator. A further cardan shaft connects the gearbox to the forward and reverse final drive, mounted on the inner axle of the bogie. Each engine has its own cooling system, with header tank and fan-cooled radiator driven through a right-angled drive from the front of the engine. The throttle, gearbox and final drives are electro-pneumatically operated, the electro-pneumatic valves being grouped together in boxes carried on the underframe. The compressed air is fed from storage reservoirs supplied by air compressors mounted on the engine.

The control equipment is so arranged that a maximum of six power cars can be operated from any driving cab. The electrical control circuits are carried between adjacent cars by means of four 19-point flexible jumper couplings. By the operation of one starting button, all the engines on the left-hand side of the train can be started up, whilst a second button starts all those on the right-hand side. Indicator lights show when each engine has started and if an engine subsequently stops for any reason, the failure of one indicator light shows the exact position in the train. The operation of one button stops all the engines. Indicator lights are also provided to show when sufficient air pressure is available in each power car and that the final drives are correctly positioned for starting. The deadman's handle operates the throttle and when released, closes the throttle and also applies the brakes.

Control Desk

There is an improved layout of instruments and controls on the driver's desk. Other equipment on the control table in the driver's cab comprises the gear change control handle, vacuum brake valve and controls for the dual-note warning horns and windscreen wipers. A hand brake wheel is fitted in close proximity to the driver's seat and provision exists for the B.R. automatic warning system to be fitted. Instruments grouped together in a suitable position for observation by the driver include gauges which indicate compressed air pressure, high and low vacuum in the two-pipe brake systems, train speed and engine speed. Provision is made for two-way buzzer communication

(*Continued on page* 18)

THE DEVELOPMENT OF THE TROLLEYBUS

*4—Before the 1914-18 War**

IN the autumn of 1912 Cedes Stoll made arrangements with West Ham Council to give some demonstrations of one of its latest vehicles. A section of just over ¼ mile in Greengate Street was suitably equipped and the trials lasted for one week. They coincided with a Municipal Tramways Association conference and may have had some bearing on the decisions of Aberdare and Keighley in the following year to order this type of car.

The year 1913 saw the opening of four further trackless systems in the United Kingdom, but none of these was to survive beyond the early 1930s. The first of these promoted under an Act of 1912 was opened at Stockport on Monday, March 10, 1913, between St. Peter's Square and the borough boundary in Offerton Lane, a distance of 1½ miles. This system was novel in several respects, chiefly for being the first to employ the Bremen or Lloyd-Kohler system in this country. As previously mentioned in these articles, this system uses two wires placed one above the other. In the two cars supplied at a cost of £700 each by Brush Electrical Engineering, a single 35-h.p. motor was provided instead of two lower powered ones and the control was by means of a power pedal on the left, instead of a hand controller. Accommodation was for 22 passengers on longitudinal seats and the service was run every 15 minutes at a flat fare of 1d. The overhead equipment was suspended from lattice steel poles in place of the normal tramway poles. Unfortunately, spare parts for the motors became difficult to obtain during the war and patronage of the service so declined that the service was withdrawn in October, 1919, and replaced by motor buses.

Keighley

Shortly after the opening of the Stockport line, another unusual system was inaugurated; that in Keighley. This town favoured the Cedes Stoll system, which used a four-wheeled trolley running along the wires; this had to be exchanged as cars passed one another, as it was the practice generally in this system to erect only one pair of wires along the route. The motors were placed on the wheel hubs. The Cedes Stoll system was adopted in spite of a very pressing offer from R.E.T. Company, which was prepared to give a full-scale free trial of one car on the sole condition that Keighley paid the driver his wages. However, Trackless Trolleys, Limited, acting as Cedes Stoll agents in this country, made an offer of a three months' free trial which was accepted; at the end of that period Keighley ordered two cars at £720 each. The first route was operated to Ingrow under an Act of 1912, but the actual date of opening does not appear to have been widely recorded. The Board of Trade gave consent to the three months' free trial after inspecting the line on Friday, May 2, 1913, but the actual date of opening to the public is not clear.

Two further routes serving Utley, Sutton and Oakworth were opened subsequently, but the original route was not extended to Oxenthorpe until after the war, although the wires were erected in 1916. The choice of a foreign system brought with it many difficulties during the war, but it is to the credit of the operating staff that with makeshift spare parts the system was maintained through these difficult times until the financial losses became too great and so by 1926 all the original routes had been replaced with motor bus services. In 1924 Keighley had the distinction of being the first town in the United Kingdom completely to abandon its tramways in favour of trolleybuses and motor buses. A second and orthodox trolleybus system was started but this did not long survive the inauguration of Keighley-West Yorkshire Services, Limited, to co-ordinate municipal and West Yorkshire Road Car bus services. The final withdrawal of all trolleybuses was in September, 1932.

Ramsbottom

The only R.E.T. system opened in 1913 (under an Act of 1912) was at Ramsbottom on Thursday, August 21, 1913. This was a through route from Holcombe Brook railway station to Ramsbottom Station by way of Edenfield and the town centre—a distance of about 3½ miles. The depot was in Stubbins Lane. Four single-deck cars were supplied for the opening, each seating 28 passengers in rear-entrance bodies built by Milnes Voss on R.E.T. chassis. Two 20-h.p. motors were employed on each car and power was supplied by the neighbouring Rawtenstall Tramways undertaking.

The design of the transmission provided for a single worm reduction for each motor thus dispensing with the chains hitherto used in the transmission. A fare of 3d. was charged for the whole journey. This system continued in operation until 1931 although the service was very much reduced for a few years before its closure. At one time a maximum of seven trolleybuses was owned. This was the first trackless trolley system in the country to be opened independently of a tramway system.

Aberdare

The fourth and last system to be opened in 1913 was at Aberdare. Like Keighley this town chose the Cedes Stoll system. The four routes selected for operation were complementary to a single tramway route which was opened at the same time between Clarence Street, Aberaman and Trecynon Cemetery via Aberdare. Two trolley routes linked Capcoch and Cwmaman respectively with the Aberaman tram terminus. A third linked Cwmdare with the other tram terminus at Trecynon, while the fourth route joined Abernant with the centre of the tram route at Commercial Street, Aberdare. The total mileage of these trackless trolley routes was just over 3½ miles, while the tramway route covered 4 miles. A double line of wires was provided on the longest of these routes, that to Cwmaman, to avoid the need to change trolleys as cars passed each other.

Trial runs were made on the Abernant section in September and on Thursday, October 9, 1913, the whole system was opened to the public. Ten trams and eight trackless trolleys were used. The trackless cars seated 27 passengers in rear-entrance bodies built by Christopher Dodson. These cars were unusual in having a sloping bonnet which was not unlike that of the Renault motor cars. The depot was at Gadlys and the trackless cars were towed to their starting points each day by tramcars with a spring-loaded drawbar. An interesting sidelight to the Act of 1911 authorising this system was the provision of a clause allowing the council to use the lines for refuse collection, although there is no record of this being put into practice. As in Keighley the vehicles became difficult to keep running during the war and in 1920 the two routes from Aberaman were abandoned, the remaining two routes being replaced by a motor bus service in July, 1925.

By June, 1913, a speaker at the Tramway and Light Railway Association's meeting was able to record that so far a total of 18 Acts for trackless trolley systems had received approval. The conditions varied from one system to another, but in most cases the dimensions of the cars were subject to Board of Trade approval. Once a system was established it was usually possible to extend it with permission from the Board of Trade without the need to promote a further Bill. A maximum weight of 5 tons unladen was usually insisted upon and this tended to hamper designers.

* Previous portion appeared September 24

District Line Signalling

(Continued from page 3)

number similar to a train number, and use is made of the path by setting that number on the siding allocation panel. If a "permission to shunt" provided on the roll is not required, it is automatically stepped off the sequence machine by the time machine when the time allowed for this movement has expired.

There are four sequence machines at Parsons Green. Three of them are for the main-line movements and carry all the timetabled train movements, including, at certain times of the day, "permission to shunt" paths to allow trains to be shunted from one end of the station to the other in between passenger trains. Machines Nos. 1 and 2 deal with the westbound trains, No. 1 bringing the trains into the station and No. 2 dealing with trains proceeding westward. No. 3 machine deals with trains on the eastbound road, and machine No. 4 deals with the siding working only.

Siding Working

The provision of a special machine for siding working is necessary to enable the various possible changes in conditions to be met. It is essential that information from the programme machines be available whenever a train which is required to be put into the sidings appears at Parsons Green Station. If this information were punched on the programme rolls of the main-line machines only, in the event of trains getting out of order and the siding train arriving early the information as to which siding it should enter would not be available on the main-line machine because it would read the passenger-train particulars first. However, No. 4 machine only contains the information for siding trains and the details are therefore available whenever the siding train arrives.

The three main-line machines each step the programme forward for the passage of a train on the running lines, but No. 4 machine only steps the programme when a train actually enters or leaves the siding or a shunting path is utilised. It is machine No. 4 which operates in conjunction with the siding allocation panel.

To follow the passage of a train on the westbound road which is destined to be stabled in a siding will illustrate the working of the apparatus. Train No. 107 is approaching from Earls Court and is intended to be stabled in No. 23 siding. As soon as it appears on the approach track circuit at Fulham Broadway, No. 1 sequence machine sets the route and signals the train into Parsons Green Station, where No. 2 programme machine carries on its programme roll the information that this train terminates at Parsons Green and therefore must go to a siding. The circuits from programme machine No. 2 check with the train describer that this train has been described as terminating at Parsons Green.

Programme machine No. 4, carrying on its roll the number of this train (107), now offers this number to the siding allocation panel and a chain of relays forming a scanning circuit offers the number 107 to each of the sidings on the panel in turn. When the same number—107—is found preset on one of the switch groups a coincidence circuit is established which stops the scanning chain. The point at which the scanning chain has stopped indicates the siding to which the train is to be routed—in this case No. 23.

Crossing a Running Road

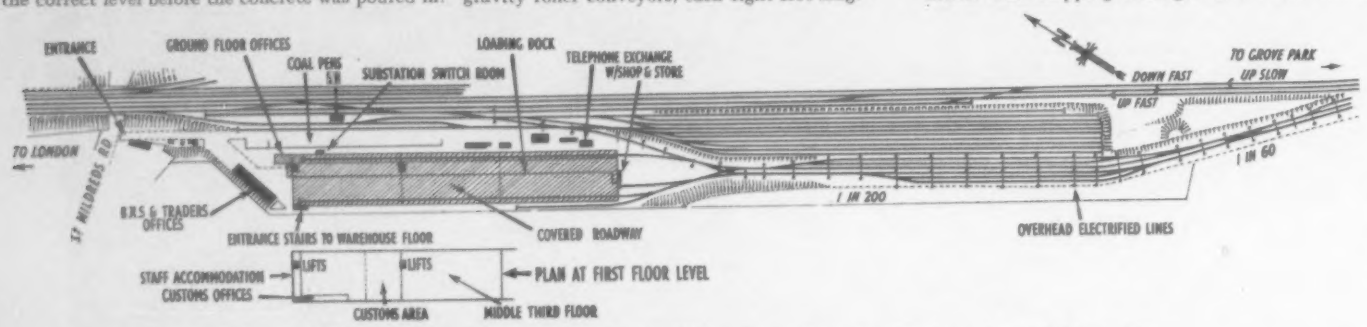
As the train must, in this case, cross the eastbound main line, the circuits for programme machines Nos. 2 and 4 now refer to programme machine No. 3 to ascertain that a path is available across the eastbound road. Provision for this path will have been made on the programme roll and, on being found, it establishes the completion of the circuits settling the route from the westbound platform into siding No. 23. The train then proceeds into the siding. The important feature in this train movement was the interconnection of the circuits between programme machine No. 4 and the siding allocation panel. The siding allocation panel consists of a series of rotary switches arranged with dials so that on each set of three dials a train number can be indicated. A multiple of these train number dials, sufficient to meet the requirements of the programmed movements into or out of the siding for one day, is allocated to each siding, and there are 10 groups of these dials, one group being allocated to each of the 10 sidings. A special additional group of dial switches has been provided to deal with the non-predictable shunt movements. These dials are not allocated to a specific siding, but are arranged so that on the three dials a train number and a siding number can be set. Additional shunt movements can thus be set up.

(To be continued)

Hither Green Perishables Depot

(*Continued from page 9*)

external footwalks for easy cleaning. The first floor reinforced concrete beams were cast in situ by means of four gantries made up of Bailey bridging and military trestling, mounted on narrow-gauge tracks, which supported the shuttering and reinforcement. These were jacked up as necessary to the correct level before the concrete was poured in.



Disposition of facilities at the Southern Region Hither Green depot for Continental perishable traffic

After the concrete had set, the gantries were jacked down and moved progressively forward. A total of 34 beams was cast in five months; the actual pouring of the concrete for one beam took seven hours.

Mechanical Equipment

Four electro-hydraulic (oil) goods lifts each 11 ft. by 8 ft. by 8 ft. 9 in. in height, allowing two fork lift trucks to enter and off load their pallets at one time, were installed on the loading dock by Aldous and Campbell. The lifts have a static capacity of 10 tons, with a carrying capacity of 4 tons, and operate at a speed of 75 feet per minute. A fleet of 18 Coventry Climax fork-lift trucks of 18,000 lb. capacity, powered by Oldham traction batteries, has been supplied to operate with 2,000 48 in. by 40 in. pallets. The trucks have a speed of 5 m.p.h. laden or 5½ m.p.h. unladen, and can lift at 30 feet per minute. There are 10 Slingsby hand operated pallet trucks of 30 cwt capacity and 35 sets of gravity roller conveyors, each eight feet long.

The shed is unheated, but office accommodation, mess rooms, etc., are provided with hot water and heating from a simple low pressure system with an oil-fired boiler. Ventilation throughout is by means of air intake fans on both sides of the building, combined with extraction unit in the roof, with cross ventilation provided by the opening window sections. Artificial lighting to meet operating working conditions is hot cathode fluorescent or tungsten lighting. Mess rooms and offices have either fluorescent or tungsten lighting. External yard lighting is by means of tungsten floodlights. Water services except for domestic use are supplied from the Southern's own well nearby.

Work, which started in April, 1959, was originally due to be completed by the end of March, 1961, but was accelerated so that the heavy seasonal traffic about to start can be handled at the depot. The work was formulated under the general direction of Mr. A. H. Cantrell, chief civil engineer, Southern Region, to the requirements of the Continental and shipping manager and other traffic officers concerned. Mr. W. J. A. Sykes, chief mechanical and electrical engineer, was responsible for the supply and installation of the mechanical equipment.

The well-known firm of Taylor Woodrow Construction, Limited, was engaged as design contractors for the detailed design and execution of the works and has received considerable praise for the speed with which the project was completed. Principal sub-contractors employed on the work were Redpath Brown, Limited, for structural steelwork; Rashleigh Phipps and Co., Limited, for electric lighting and services; Comyng Ching and Co., Limited, heating installation; Cawood Wharton, Limited, hollow block flooring.

RAVENGLASS AND ESKDALE

Preservation Society

THE Ravenglass and Eskdale Railway Preservation Society at its first annual meeting on October 15 elected Mr. Douglas Robinson, clerk to Muncaster Parish Council, to be the director representing the society on the board of the company which is to run the railway. The society itself is not running the 6½-mile Lake District line. The society raised £5,000 towards the £12,000 for which the railway was bought.

The difference, it was stated at the meeting on October 15, was found by arrangement between Sir Wavell Wakefield, M.P. for Marylebone, who has a house at Kendal, and Mr. Colin Gilbert, a stockbroker, of Lapworth, Warwickshire, who are both members of the society. These two, together with Mr. Robinson, are the trustees, and the railway's assets have been conveyed to them. The society's powers in the company will be proportional to the amount of money it puts into it. It is understood that Sir Wavell and Mr. Gilbert, with other backers, will put up the capital needed to run the line and pay the staff of eight on this 15-in. gauge undertaking.

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SHEFFIELD TRAMCARS

Souvenir Brochure

THE demand for the 32-page illustrated brochure entitled *The Tramway Era in Sheffield*, produced by the Sheffield Transport Department, has proved so great that orders for a reprint have already been necessary. An edition of 3,000 copies was disposed of within the first seven days following the end of tramway operation in Sheffield on Saturday, October 8, 1960, when thousands of Sheffield's citizens and visitors to the city gave the last trams a wonderful send-off, despite pouring rain. The souvenir brochure, price 5s. each (6s. post free), is on sale at the Pond Street bus station inquiry office, at Head Office, and in the Central Library, Surrey Street, where an exhibition on "The Tramway Era" is being staged for three weeks, ending October 29. Much interest has been shown in the exhibition, which was visited by some 4,500 people during the first five days.

Fare Collection Box

The exhibition includes a model open-top double-deck tramcar of the early 1900s which was constructed in the Department's workshops in the year 1910. Another interesting exhibit is a fare collecting box used by conductors on Sheffield horse cars in the late 19th century. The box has windows in the upper half to enable both the passenger and the conductor to see that the right fare has been paid; the pressure of a button causes the coin to fall into the lower half of the metal container where it remains securely locked away. In order to illuminate the glass container in time of darkness, the collecting box is fitted with a tiny oil lamp and wick with glass reflectors which cast a light into the box through one of the side windows. This interesting example of transport equipment was made entirely by hand by a local coppersmith, George Cooper, whose firm is still operating in Stanley Street, Sheffield. The remainder of the exhibition includes photographs and documents relating to the operation of tramcars in Sheffield over some 87 years, in addition to exhibits of modern overhead line and tramcar equipment.

★

DEFUME

Invitation to Manufacturers

ON September 17 Lord Colwyn, in a letter to *The Daily Telegraph*, announced his intention of forming an association to be called provisionally Defume. The object of the association is to arouse public concern and precipitate government or police enforcement action against the alleged growing inconvenience and health hazard of diesel fumes. Among the very large numbers of letters received in reply were some claims from industry and fuel technologists which indicated that the problem of diesel fume abatement had been solved in the laboratory and on the drawing board.

Lord Colwyn feels that it is desirable to include all interested manufacturers and he therefore invites them to forward to him details of any product or system which might abate the seriousness of what has been called a major menace to urban health. Such confirmation of the technical possibility of diesel fume abatement will clearly provide one of the foundation stones for the association's argument. Interested manufacturers should communicate with Lord Colwyn, at 1 Argyll Road, London, W.8.

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INTERCITY DIESEL SETS

(*Continued from page 15*)

between the guard and the driver. Loudaphone equipment is also fitted in all driving cabs and guards' compartments for communication between driver and guard.

For the comfort of the driver, an adjustable leather-padded seat is provided; he has a leather-padded arm-rest conveniently placed for operating the deadman's handle. Warm air from the main heating system is fed into the driver's compartment. He is supplied with controls which regulate the temperature over a wide range and, if necessary, a proportion of the warm air can be diverted on to the windscreen for demisting. An adjustable sunvisor is also provided. Fire protection equipment is provided with indicator lights on the train side to call attention to the car concerned from track level. The exteriors of the cars are painted green with cream linings and instead of the usual head-code lamps, accommodation is provided at the driving end of each powered car for a four-letter head-code indicator which can be illuminated when necessary.

Queen Elizabeth the Queen Mother is to visit the Castle Mills, Edinburgh, factory of the North British Rubber Co., Limited, on November 2 where she will see the completion of a £3 million modernisation scheme. She will be accompanied by the Lord Provost of Edinburgh and will be received by Mr. Foster M. Stewart, managing director, and fellow directors. As Queen she accompanied King George VI on a wartime visit to Castle Mills in 1941.

SOCIAL AND PERSONAL

Rees Jeffreys Research Fellow

THE appointment is announced of Dr. M. E. Beesley as Rees Jeffreys Research Fellow in the economics and administration of transport at the London School of Economics. This appointment has been made possible by the generosity of the trustees of the Rees Jeffreys Road Fund, who have given a substantial benefaction to the school for the purpose. Dr. Beesley was educated at the University of Birmingham, where he graduated B.Com. in 1945. Since 1951 he has held an appointment as lecturer in commerce in the faculty of commerce and social science of that University. During this period Dr. Beesley collaborated in the work of the Road Research Laboratory, and in that connection was joint author of one of its recent publications, "The London-Birmingham Motorway (Economic Assessment)."

* * *

We regret to record the death of Mr. F. Lockwood, formerly London cartage manager, Eastern Region. He retired in 1953.

* * *

We record with regret the death of Sir Robert Rankin, Bart, the former Liverpool shipowner and M.P. He was 82.

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Sir Wilfred Ayre has been appointed chairman of the Dundee, Perth and London Shipping Co., Limited, in succession to Mr. F. D. J. Buist.

* * *

Mr. R. A. Long has been appointed commercial superintendent (Great Eastern), Liverpool Street, Eastern Region, B.R. He was formerly economic survey officer to the region. Mr. Long joined the L.N.E.R. at Leeds in 1935 and after working at various stations and in district and headquarters commercial offices in the North Eastern Area completed the training of a traffic apprentice in the Southern Area. After a period as relief stationmaster and as assistant to the district superintendent, Manchester, he entered the rates and statistics section of the chief general manager's office. There followed appointments as head office inspector to area superintendent and locomotive running superintendent, deputy chief of the trains section and chief of the timetable section in the office of the passenger manager (Southern Area). In 1948, he became chief of the central timing and engine diagramming section, Southern Area (Eastern section), the following year being appointed trains assistant to the operating superintendent (Eastern section). He became assistant (freight trains) to the operating superintendent, Eastern and North Eastern Regions, in 1950 and, a year later, joined the traffic costing service at British Transport Commission headquarters. Mr. Long was appointed senior traffic costing officer, Liverpool Street, in 1953 and was later redesignated principal traffic costing officer. In addition, he took administrative charge of the economic survey office, Eastern Region, from its inception in 1957, being appointed economic survey officer the following year.

Mr. R. A. Long

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Air Marshal Sir Geoffrey Tuttle, K.B.E., C.B., D.F.C., has been appointed an additional member of the board of directors of Vickers-Armstrongs (Aircraft), Limited.

* * *

Mr. J. L. Waldron, assistant commissioner, Metropolitan Police, is to be the guest speaker at the annual autumn luncheon of the London Division of the Traders Road Transport Association, to be held on Tuesday, November 22.

* * *

Dowty Group, Limited, announces that Mr. L. Harper, a director of Coventry Precision, Limited, has been appointed vice-chairman of the board. He is managing director of Dowty Hydraulic Units, Limited.

* * *

We record with regret the death of Mr. P. Nunn, O.B.E., London East divisional superintendent, Southern Region, B.R., at the time of his retirement in 1951. He joined the L.B.S.C.R. as a clerk in 1900. The funeral took place on October 19.

* * *

Mr. H. de Grey-Warter, public relations officer of the Regent Oil Co., Limited, having recently been placed on the Territorial Army Reserve of Officers after serving for over 21 years, has now accepted the appointment of District Commissioner, Boy Scouts, City of Westminster.

* * *

Mr. G. B. Gray, divisional traffic manager, East Midlands Division, London Midland Region, has presented, on behalf of British Railways, the nameplate and football emblem from the splasher of the locomotive *Nottingham Forest* (L.N.E.R. B.17 class 4-6-0) to the Nottingham Forest Football Club.

* * *

The Minister of Transport has appointed three members of the Transport Users' Consultative Committee for the North Western Area until June 30, 1963.

Representing industry: Mr. G. K. Tatterson.
Representing local authorities: Co. Alderman W. Ellison.
Additional member: Mrs. M. McMillan.

Mr. G. K. Tatterson, a new member, is general transport manager of John Summers and Sons, Limited, and a member of the British Iron and Steel Federation Transport Committee.

* * *

London Transport announces that Mr. J. I. McGillivray, B.Sc., A.R.I.C.S., A.A.I., has been appointed estate agent and rating surveyor, becoming an officer of the Executive, with effect from October 3. He succeeds Mr. T. C. West, whose retirement was recently announced. Mr. McGillivray, who is 44, joined the department of the estate agent and rating surveyor in 1937 to assist in the acquisition of property required for railway extensions under the 1935-1940 new works programme. During the war he served with the Royal Engineers (Transportation Branch) and with the claims and hirings directorate in Malaya, reaching the rank of captain. He was appointed a principal executive assistant in September, 1958, and since then has been responsible to the estate agent and rating surveyor for the work of the department connected with town and country planning, rating, acquisitions and sales.

Captain Dennis I. Peacock has been appointed chief of B.O.A.C. flight operations. He joins the executive management.

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Mr. J. Baxter has been appointed central area engineer of Ribble Motor Services, Limited. He succeeds Mr. R. A. J. Holding, who was recently appointed assistant engineer of the company.

* * *

We regret to record the death of Mr. Dennis Foden, managing director of E.R.F. Limited, Sandbach. He was 60. It was Mr. Edwin R. Foden who founded E.R.F. in 1933, but his son was made managing director almost immediately, and he was the man most responsible for the success which followed.

* * *

Mr. J. H. Richardson, traffic manager of the Northern General Transport Co., Limited, has been appointed to succeed Mr. F. K. Pointon as general manager of East Midland Motor Services, Limited. Mr. Pointon is leaving the East Midland company on January 1 next to take up an appointment on the executive staff of the British Electric Traction Co., Limited.

* * *

The board of H. V. Burlingham, Limited, Blackpool, now a Duple company, has been reconstituted as follows: Messrs. D. W. and J. H. Eaves resign from the board, and are replaced by three directors from Duple Motor Bodies, Limited, the parent company. Mr. H. W. Sydenham is chairman, Mr. J. Eaves managing director, and Mr. F. S. Williamson secretary.

* * *

The annual prize awarded by the British Electric Traction Co., Limited, to the candidate who, being an employee of a road passenger transport company, achieves the highest aggregate of marks in the Royal Society of Arts examinations for a diploma in road transport subjects has been won for 1959-60 by Mr. K. L. Stones, an engineering inspector with the Birmingham and Midland Motor Omnibus Co., Limited.

* * *

Mr. Thomas Lord, general manager, Barrow-in-Furness Corporation Transport Department, for the past 11 years, has been appointed general manager of Leeds City Transport in succession to Mr. A. B. Findlay who has regrettably been compelled to retire through ill-health. He will take up the post in February. Mr. Lord was previously deputy general manager of Birkenhead Corporation Transport Department.

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Lieut.-Colonel F. A. Hough, O.B.E., E.R.D., M.Sc.(Eng.), A.M.I.E.E., has been appointed chief motor transport officer to the General Post Office. He is at present chief regional engineer to the London Postal Region. He joined the Post Office in 1932. Since the war he has been successively area engineer in Bournemouth, assistant staff engineer in the engineering department, organisation branch and main lines branch, and chief regional engineer in the London Postal Region.

* * *

Mr. Ronald Ellis, B.Sc.Tech.(Hons), A.M.I.Mech.E., M.I.Loco E., Assoc.Inst.T., has been appointed assistant general sales and service manager of Leyland Motors, Limited, and as such will be responsible to Mr. D. G. Stokes, director and general sales and service manager. Mr. Ellis joined Leyland as a trade apprentice in 1941. In 1954 he was appointed general manager of British United Traction, a position which he has relinquished to take up his new duties. He has, however, been appointed to the board of B.U.T. in an advisory capacity. The new general manager of B.U.T. is Mr. F. G. Headen.

* * *

Mr. G. Coaker, O.B.E., formerly commercial superintendent (Great Eastern), Liverpool Street, has been appointed movement superintendent (Great Eastern), Liverpool Street, Eastern Region, B.R. Mr. Coaker entered the service of the London and North Eastern Railway as a traffic apprentice in 1929. In 1947 he became assistant London city manager, the title of this post being changed, in April, 1950, to assistant district goods superintendent (London city). Mr. Coaker was appointed assistant to commercial manager (development), Eastern Region, Liverpool Street, in March, 1954, three years later taking up the duties of commercial superintendent (Great Eastern). Mr. Coaker was awarded the M.B.E. (Military Division) in the Birthday Honours List of 1940 and the O.B.E. (Military Division) in 1945.

The Pressed Steel Co., Limited, has been instrumental in the formation of a new aircraft manufacturing group, BEAGLE (British Executive and General Aviation, Limited). Prominent in the fusion were (left to right) Messrs. J. R. Edwards, managing director of Pressed Steel; Peter Masefield, managing director of the BEAGLE group and now a director of Pressed Steel; F. Bates, deputy chairman of Auster Aircraft, Limited; M. A. H. Bellhouse, deputy chairman of Pressed Steel

Pressure of business has compelled the chairman of the Railway Correspondence and Travel Society, Mr. R. D. Goddard, to relinguish this position, and has also been the cause of the resignation from the management committee of Mr. T. J. Edgington, hon. publications officer. Mr. D. R. Pollock has been appointed chairman. In view of the increasing work being entailed in R.C.T.S. publications, it has been decided to separate the administration of these from that of *The Railway Observer*. From January 1, 1961, Mr. E. V. Fry, hon. chief editor of *The Railway Observer*, will devote his full attention to book publication. Mr. A. R. Brown, at present hon. publicity officer, will assume his duties of hon. chief editor.

CLASSIFIED ADVERTISEMENTS

CLASSIFIED ADVERTISEMENTS should be addressed to THE MANAGER, Classified Advertisements, MODERN TRANSPORT, Russell Court, 3-16 Woburn Place, London, W.C.1.

RATES.—The minimum charge for classified advertisements is 7s. for 14 words or less, and 6d. for each additional word. The name and address of the advertiser is charged at the same rate. If a box number is used 2s. extra is charged to cover our name and address and postage. If set in paragraph form each paragraph is estimated separately. Official Notices and semi-display in the classified columns are charged at the rate of 40s. per single column inch.

ACCEPTANCE.—Advertisements can be accepted up to 2.30 p.m. on Monday to ensure insertion in the current week's issue. MODERN TRANSPORT is on Sale every Friday.

SITUATION VACANT

DRAUGHTSMAN REQUIRED for work in connection with Public Passenger Transport Vehicles—Body Design. National Certificate Standard and completed National Service Training. Canteen facilities: Free travel to and from duty on company's vehicles and other travel concessions. Apply in writing giving particulars of age; Salary required; Experience, etc., to Staff Department, Birmingham and Midland Motor Omnibus Co. Ltd., 571 Bearwood Road, Smethwick 41, Staffs.

IMPORTANT CONTRACTS

First 90 m.p.h. M.-U. Electric Stock

EQUIPMENT designed to provide a maximum service speed of 90 m.p.h., the first of its kind in this country, has been ordered from the General Electric Co., Limited, by the British Transport Commission for powering 23 multiple-unit a.c. electric trains. The equipment order is valued at over £580,000. The new stock will comprise 15 four-car and eight two-car trains; they will be used on Eastern Region services between Liverpool Street and Clacton and Walton. The electrical equipment includes transformers, silicon rectifiers, traction motors, control gear and cables.

Albion Orders

Road Services (Forth), Limited, has placed an order with Albion Motors, Limited, for 12 Albion Chieftain-Scammell tractor chassis, six Albion Clydesdale tractor chassis, and three Albion Reiver lorry chassis. The Clydesdales and Reivers will be powered by the new Leyland Power-Plus 400-S diesel engine of 125 b.h.p. Guernsey Railway Co., Limited, has ordered six Albion underfloor-engined Nimbus bus chassis, which will be fitted with Reading 35-seat bodies.

Southern Region Contracts

The Southern Region of British Railways has placed the following contracts:

Macartney and Sons, London, S.W.9, for repairs to roofs at Wimbledon Station.

Fairey Air Surveys, Limited, Maidenhead, for aerial survey of New Cross Gate to Deptford Wharf.

Durable Asphalte Co., Limited, London, N.1, for repairs to roofs at Kingston and Waterloo stations.

Harry Neal, Limited, London, W.1, for removal of bridge and reinstatement of highway at Greenwich Royal Hill.

Truett and Steel, Limited, Thornton Heath, for construction of new station buildings, platform roofing and ancillary works at Hurst Green New Station.

New Eastern Region Contracts

The Eastern Region of British Railways announces the following contracts:

Kirk and Kirk, Limited, London, S.W.15, for reconstruction work at Rainham Station and demolition work and construction of new workshop, etc., at Tilbury Riverside Station.

The Fairfield Shipbuilding and Engineering Co., Limited, Chepstow, for steelwork for the reconstruction of Harringay Viaduct between Harringay West and Hornsey.

Drake and Gorham (Contractors), Limited, London, S.W.1, for electrical installation at Chelmsford Station.

Holland and Hannen and Cubitts (Great Britain), Limited, London, S.W.1, for improvements at Westcliff-on-Sea Station.

The Concrete Proofing Co., Limited, Kingston-on-Thames, for repairs to reinforced concrete substructures at Harwich and Parkeston Quay.

The Reliance Telephone Co., Limited, London, W.C.2, for a 100-line automatic branch telephone exchange at Colchester.

North Eastern Region Contracts

Recent contracts placed by the North Eastern Region of British Railways include:

The Cleveland Bridge and Engineering Co., Limited, Darlington, for renewal and widening of bridge at Salters Lane North, Darlington

Drummond-Asquith, Limited, Birmingham, for a Dawson axle-box washing machine for Springhead wagon works, Hull.

Hergarth and Company, York, for an excavator.

Alfred Herbert, Limited, Coventry, for a vertical miller and equipment for the Locomotive Carriage and Wagon Development Unit at Stooperdale.

Newall Group Sales, Limited, Peterborough, and the Societe Genevoise, Limited, Newport Pagnell, for machine tools and equipment for the Locomotive Carriage and Wagon Development Unit, Stooperdale.

F. and J. Watkinson, Bradford, for repairs to bridges at Marsh Lane, Leeds.

Ransomes, Sims and Jefferies, Limited, Ipswich, for a 1-ton battery-operated mobile crane and ancillary equipment for Bradford Valley goods depot.

E. Davis (Fixers), Limited, York, for alterations and strengthening of the superstructure of bridge at Cod Beck.

Steels Engineering Installations, Limited, Sunderland, for lubricating oil and compressed air facilities at Greensfield motive power depot, Gateshead.

Thos. Storey (Engineers), Limited, Stockport, for the provision of timber ribands and chesses and hire of Bailey bridges required in connection with the repair of bridge at Bog Lane, on the East Coast main line north of York.

The Cleveland Bridge and Engineering Co., Limited, Darlington, for part reconstruction and widening of two bridges at Apperley Bridge and Rawdon.

Leslie Hartridge, Limited, London, W.1, for heavy-duty test equipment for diesel fuel pumps, injectors and so on at North Road Works, Darlington.

The Brighouse Estate Co. (Builders), Limited, Bradford, 2, for foundations for hydraulic buffer stops on Nos. 4 and 5 platforms and for the provision of drainage and water supplies at Bradford Exchange Station.

C.N.R. Orders 50 More Flat Cars

An order for 50 steel flat cars for use on Canadian National Railways lines in Newfoundland has been placed by the railway with the Eastern Car Division of Dominion Steel and Coal Corporation, Trenton. It supplements an order of 80 cars placed with the same manufacturer last July. The new 40-ton flat cars, 40 ft. in length, are similar in weight to cars now in service in the province, but have an increased capacity of 35 per cent through use of low-alloy steel instead of structural carbon.

Australian Order For Leyland Lion

The Australian headquarters of Leyland Motors, Limited, has ordered 12 of the new Leyland Lion rear-engined single-deck chassis, introduced less than a month ago. They will be fitted with the more powerful of the two engines available—the Power-Plus P680 of 200 net b.h.p. Another overseas order for Leyland bus chassis comes from the Norwegian operator A.S. Oslo Sporveir, which calls for 20 underfloor-engined Worldmaster single-deckers generally similar to 50 already in service.

Thornycroft Pilot Vessel for Belfast

The Belfast Pilotage Authority has placed a contract with John I. Thornycroft and Co., Limited, for the construction of a pilot vessel, 54 ft. in length o.a., with beam of 14 ft. and draught of about 5 ft. The propelling machinery will be a Rolls-Royce C6 diesel engine with a maximum rating of 300 b.h.p. at 2,000 r.p.m., fitted with reverse and reduction gear. The vessel is expected to have a speed of about 12 knots. She will be generally similar to the *Nancy Raymond*, also built by Thornycroft and supplied to the Bristol Pilotage Authority in 1958.

A.E.C. Buses For Iraq

A.E.C., Limited, announces receipt of an order for 24 complete single-deck buses for Karbala Transport Services, Iraq. The vehicles will be based on the Ranger chassis, fitted with 33-seat standee single-deck bodies by Marshall-Mulliner Buses, Cambridge. It will be recalled that Baghdad operates a 100 per cent fleet of 450 A.E.C. single- and double-deck buses. Recent home orders for A.E.C. buses includes those for 40 single-deck Reliances for various operators booked during the past week and one for 10 front-entrance Bridgemaster integral double-deck buses placed by Oxford Motor Services.

SHIPPING AND SHIPBUILDING

Irish Cargo Rates Raised

FREIGHT lines to Northern Ireland announced last weekend that rates across the Irish Sea to Northern Ireland are to be raised by 7½ per cent. The move is dictated by rising costs, especially the recent increases in seamen's and dockers' wages. The blow falls at a time when two prominent English manufacturers with factories in Northern Ireland have had to lay off workers because, it is alleged, transport charges are a handicap.

The notice of the increase was signed by the Belfast Steamship Co., Limited, the Belfast Mersey and Manchester Steam Ship Co., Limited, the Belfast and Preston Transport Co., Limited, Burns and Laird Lines, Limited, the Clyde Shipping Co., Limited and William Sloan and Co., Ltd. A separate announcement was made by British Railways regarding through charges. Transport Ferry Service and Link Line, Limited, the two vehicle and container ferry operators, are making a similar 7½ per cent surcharge on sea freight. The increases take effect from November 1. Mr. R. Berkeley, general manager of the Belfast Steamship Co., Limited, said they were inevitable; "we are faced with the greatest increase in costs in our history," he added.

Dublin Alarmed at Container Move

AT the annual meeting, Mr. L. S. Furlong, outgoing chairman of the Dublin Port and Docks Board, said that irreparable harm was being done to the port of Dublin by the ban on container ship traffic. While negotiations regarding this ban were dragging on, traffic was being diverted from Dublin at an increasing rate and was being handled by the dockers at all other ports in Ireland without objection. Nevertheless, the total tonnage of vessels which entered the port last year was the second highest on record. The Board had assisted in the export drive by reducing by 33⅓ per cent the goods dues on exports.

Clyde Graving Dock to Go Ahead

THE Firth of Clyde Dry Dock Co., Limited, a consortium of shipbuilding and engineering companies in the West of Scotland, announced on October 11 that work will begin in three months' time on the construction of the graving dock, ship repair centre and tanker cleaning installation at the Great Harbour, Greenock. The total cost will be £4,250,000 of which the Government will provide £2,850,000. Tenders will be issued shortly. The repair and tanker cleaning section will be launched initially and should be in use in two years' time. The dock should be completed in three to four years. It will be bigger than any existing dry docks in Europe and will take a 140,000-ton tanker. At present, Clyde limits are ships of 24,000 tons.

Marine Engine Capacity

THERE should be an early reorganisation of the British marine engineering industry, it was suggested in a paper read in Glasgow last week to the Scottish branch of the Institute of Marine Engineers by the branch chairman. The speaker, Mr. T. W. D. Abell, managing director of David Rowan and Co., Limited, Glasgow, said that the cost of marine engines in Japan and Germany was now well below that of this country. This, he maintained, was largely due to the fact that in Japan and Germany the marine engineering industry was concentrated in a few firms and could thereby adopt mass production and standardisation of design. The moral was, first, that there must be a merger of existing firms into a much smaller number of bigger units. His ideal was one marine engineering firm on the Clyde and one on the North-East coast, which could together meet the needs of British shipbuilders and compete vigorously for orders from Continental shipbuilders.

Gravesend—Tilbury Ferry Ties Up

ON October 11 the first of the three existing Gravesend-to-Tilbury ferry boats to go out of service, the 57-year-old *Catherine*, made her last trip across the Thames. Afterwards she was moored alongside the Tilbury landing stage and will remain there until it is decided what is to be done with her and her sister passenger ships, the *Rose* and the *Edith*. The first of the new ships is due at the end of this month, but it was necessary to take the *Catherine* out of service earlier because her passenger certificate had expired and it was not worth renewing it for such a short period. Her bell and other items of equipment may be placed in the British Railways museum at York.

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FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations.

P. and O.

The directors of the Peninsular and Oriental Steam Navigation Company have announced a dividend at the rate of 5 per cent per annum, less income tax, on the preferred stock for the half year ended September 30, 1960, and an interim dividend of 3 per cent actual, less tax, on £29,413,263 deferred stock, absorbing £540,468 (1959—3 per cent on £27,555,108 absorbing £506,325). This interim dividend is in respect of the company's year ending on the same date.

Transport Group (Holdings)

The London General Cab Co., Limited, proposes to change its name to Transport Group (Holdings), Limited, in view of the continuous expansion of activities. Its taxicab operating and repair business will be transferred to a new wholly owned subsidiary, which will carry on the name of London General Cab. Among the companies which will be controlled by the new holding company is Blox Services, Limited, the Morden vehicle contract-hire specialist.

Gloucester Railway Carriage and Wagon

The Gloucester Railway Carriage and Wagon Co., Limited, has decided that as it can no longer depend on the manufacture of railway rolling stock as the principal business other lines of manufacture must be found and developed. General Sir William Morgan, chairman, says that the fall in the group net profit from £206,952 to £143,403 in the year ended May 31, 1960, was due to the failure to obtain orders for rolling stock sufficient to keep the carriage and wagon works filled to more than a fraction of their capacity. Work recently offered by the B.T.C. to private firms has been far below the manufacturing capacity available in the country. The result has been price-cutting competition and in the case of Gloucester Railway Carriage the acceptance of work at uneconomic prices to avoid wholesale reduction in the labour force.

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